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TABLE OF CONTENTS

PAGE

1. THE CAḶUKYAS OF VEMULAVĀḌA
   By K. A. Nilakanta Sastri .. 101

2. SOME PROBLEMS OF THE MĀṆḌŪKYA-KĀRIKĀ
   By T. M. P. Mahadevan .. 130

3. FREEDOM OF INTERSTATE COMMERCE IN FEDERAL CONSTITUTIONS
   By K. Venkoba Rao .. 147

4. IRRIGATION IN INDIA
   By George Kuriyan .. 161

5. ORGANISATION OF GOVERNMENTAL ADMINISTRATION
   By E. Asirvatham .. 186

6. MORTALITY IN THE CITY OF MADRAS—A STUDY OF SEASONAL VARIATION
   By D. V. Rajalakshman .. 199

7. MEMORIAL TO THE LATE S. S. Suryanarayana Sastri, M.A., B.Sc. .. 214

8. REVIEWS.— .. 218
   1. Kerala Culture by K. Mammen
   2. The Economics of Indian Agriculture by B. V. Narayanaswamy and P. S. Narasimham, Part I
   3. Important Inscriptions from the Baroda State by A. S. Gadre
   4. Zoroastrian Problems in the Ninth Century Books by H. W. Bailey.

THE CĀḶUKYAS OF VEMULAVĀḌA

By

K. A. Nilakanta Sastri

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Besides Pampa's well-known references to his patron Arikesari and his ancestors in the *'Bhārata'*, we have three inscriptions of the Cāḷukyas of Vemulavāḍa—the Kollipaṟa plates of Arikesari I,[1] the Vemulavāḍa stone inscription of Arikesari II[2] and the Parbhaṇī plates of Arikesari III.[3] Light has been thrown on the history of the line by the tentative discussions of the editors of these documents. Our aim is to consider the entire history of the line in the light of data furnished by the four authorities now available and other evidence bearing on these data. Mr. D. L. Narasimhachari has reviewed the genealogy of the line as given by Pampa[4] and shown that Fleet's first account of this line suffers from the unsatisfactory nature of the manuscripts of Pampa consulted by him and from a defective understanding of his difficult text. And Mr. Timmappayya in his work on *Nāḍōja Pampa*[5] has reviewed the evidence and made suggestions of interest. In our discussion we shall adhere as closely as possible to the data from our sources and offer only such comments as are necessary for elucidating them and placing them in their proper relation to other known facts of history. Earlier writings on the subject contain some palpable errors, and a good deal of groundless speculation; it is not necessary to consider these in any detail, following the well-known rule: bhūyāmso' paśabdāḥ alpīyāmsaś-śabdāḥ.

The Kollipaṟa plates bear no date, and are written in Sanskrit verse and prose. Opening with salutations to Śiva and Viṣṇu,

1. Ed. M. S. Sarma—Bhārati VII. pt. 2 (Pramodūta Śrāvaṇa).
2. Ed. B. V. Krishna Rao—JAHRS. vi. pp. 169-92, also reproducing text of Kollipaṟa plates.
3. Original edition by S. N. Joshi in JBISM xiii 3; text reproduced by Nathuram Premi in his *Jaina sāhitya aur itihāsa* pp. 85-92.
4. JAHRS vii. pp. 158-64.
5. Mangalore, 1938.

the record makes a reference to the Boar incarnation of Viṣṇu and the rise of the Cāḷukya line of rulers efficient in the protection of the earth. Satyāśraya, a *mahātmā* who had the title Raṇavikrama, was born in that family; Pṛthivīpati, the equal of Pṛthu in fame, was his son; the famous Mahārāja was born of him; Mahārāja's son was Rājāditya, whose son was the universal emperor (viśvarāṭ) Vinayāditya Yuddamalla; he had the titles Nṛpāṅkuśa and Rājāśraya, and was a devotee of Śiva. From him was born Arikesari whose feet were worshipped by the Ṭuruṣka, Yavana, Barbara, Kaśmīra, Kāmbhoja, Magadha, Mālava, Kalinga, Ganga, Pallava, Pāṇḍya, Kerala and others; who subdued the entire world with the signet of the boar obtained as a boon from the adorable Nārāyaṇa—the usual Cāḷukya title applied to the whole dynasty; who was learned in grammar, Dharma, elephant lore, logic, archery and medicine, and had the titles Raṇārjuna, Samastalokāśraya, Ṭribhuvanamalla, Rājatriṇetra and Sāhasarāma. Then follows the description of the donee which begins with a verse which is a curious double entendre and may be set down here as it has been taken to contain a date in the Kaliyuga era:

> Kalau vyāpte jagatyasmin-surendrebhārka-sāgarāḥ |
> dānena tejasā sthityā jitā yena mahātmanaḥ ||

This verse praises the Ankuṭa-guru-kula to which the donee belonged and says that it excelled the noble elephant of Indra, the sun and the seas respectively by its liberality (rut), splendour and stability. Ṭhe first line, Mr. M. S. Sarma thinks, contains the Kali date 4121 (A.D. 1020). Then is mentioned Sadyośiva-ācārya who was residing in Ēlēśvara to the west of the northern entrance to Śrīparvata, the abode of Śrīkaṇṭha (Śiva); the pupil of Sadyośiva was Mugdha-Śiva who was well versed in the (Śaiva) Siddhānta and who had destroyed all his sins by constant meditation (dhyāna); to him as a *vidyādāna* was given the village of Belmoga in the Rāmaḍu Viṣaya by Arikesari who gets the further titles Rājāṅkuśa and Āhavavikrama besides some of those which occur earlier in the inscription.

The genealogical data furnished by the Vemulavāḍa plates of Arikesari II, by Pampa who wrote under his patronage and by the Parbhaṇī plates of Arikesari III are best presented together with those from the Kollipaṟa plates in a synoptic form before we enter upon the discussion of their significance:

(1) *Kollipara*
Cāḷukyavaṁśa

⋮

Satyāśraya Raṇa-vikrama
|
Pṛthivīpati
|
Mahārāja
|
Rājāditya (Pṛthuvikrama)
|
Vinayāditya Yuddhamalla Rājāśraya
|
Arikesari

(2) *Vemulavāḍa*
Sun

Vinayāditya Yuddha-malla I.
|
Arikesari I
|
Narasimhavarma I Rājāditya
|
Yuddhamalla II
|
Baddega
|
Yuddhamalla III[6]
|
Narasimhadeva II
|
Arikesari II

(3) *Pampa*
Cāḷukyas

Yuddhamalla I
|
Arikesari I
|
Narasimha I — Bhadradeva

Narasimha I
|
Dugdhamalla II — Other sons

Dugdhamalla II
|
Baddega Solada-gaṇḍa — Others

Baddega Solada-gaṇḍa
|
Dugdhamalla III
|
Narasimha II *m* Jākavve
|
Arikesari II.

(4) *Parbhani*
Āditya-bhava
Cāḷukya-Vaṁśa

Yuddhamala I
|
Arikesari I
|
Narasimha I — **Bhadradeva**

Narasimha I
|
Yuddhamalla II
|
Baddiga I
|
Yuddhamalla III
|
Narasimha II
|
Arikesari II
|
Bhadradeva II
|
Arikesari III **Ś. 888.**

At a glance we see that in all these four records we have to deal with one and the same dynasty, that *prima facie* Nos. 2, 3, 4 begin with the two names at the end of No. (1) and that the Parbhaṇī plates carry the genealogy to two generations beyond Nos. (2) and (3). We also notice that while Nos. (1) and (3) simply speak of the Cāḷukyavamśa and then proceed to give out the names of the kings, No. (2) traces the line from the Sun and No. (4) expressly declares *astyādityabhavo vamśāś-cāḷukya iti viśrutaḥ*, i.e., there is the line born of the Sun which is known as Cāḷukya. This is of interest as being in keeping with the tradition regarding the rule of 59 kings of the dynasty in Ayodhyā before it came down to Deccan; but it is well known that other records trace their descent to Brahmā or to the Moon.[7]

The name of Yuddhamalla figures as Dugdhamalla in the case of the second and third rulers of that name in Pampa, though the form is unchanged for the first ruler; this is perhaps no more than a scribal error. The inscriptions give clearly Yuddhamalla.

The dynastic affinities of this line have been much discussed and their connection with the Cāḷukyas of Bādāmi has been affirmed and denied by turns. But the most useful suggestion in this respect was, I think, first made by Mr. Timmappayya in his work on Nāḍōja Pampa[8] in which he pointed out the probable identity of Yuddhamalla I Vinayāditya with the homonymous ruler of the Lāṭa branch of the Cāḷukyas, the son of Jayasimhavarman, mentioned in the Balsar plates.[9] Let us now place side by side the genealogy of the Cāḷukyas of Bādāmi from which the Lāṭa line branched off and that of Yuddhama I as we find it in the Kollipaṟa plates:

6. Verse 6 of the inscription is not clearly engraved, but there is no doubt that Narasimha I Rājāditya, Yuddhamalla II, Baddega, and Yuddhamalla II are all mentioned in it as may be seen from the impression ll. 24-5. Mr. B. V. Krishnarao has missed this and assumed an omission of two generations. Rao Bahadur C. R. Krishnamacharlu placed his readings of the record in my hands and I am very grateful to him for the help.

7. DKD. p. 339.

8. pp. 18, 26-7.

9. JBBRAS. xvi. p. 5.

Kollipaṟa

- Satyāśraya Raṇavikrama
  - Pṛthivīpati
    - Mahārāja
      - Rājāditya Pṛthuvikrama
        - Vinayāditya Yuddhamalla

Bādāmi

- Pulakeśin I
  - Kīrttivarman I
    - Pulakesin II
      - Other brothers
      - Vikramāditya I
      - Jayasimhavarma Dharāśraya
        - Śryāśraya Śīlāditya Kal. 421, (A.D. 671)
        - Vinayāditya Yuddhamalla Ś. 653 (A.D. 731).
    - Viṣṇuvardhana
  - Mangaleśa

Two things stand out prominently here; first the number of generations between Vinayāditya Yuddhamalla and Satyāśraya Raṇavikrama on the one side and between Pulakeśin I and Vinayādityā on the other tallies very well; secondly Pulakeśin I was Satyāśraya *par excellence,* the first to bear the title, and in the Mahākūṭa pillar inscription he is styled Satyāśraya Śrī-Pṛthīvallabha—Raṇavikramāṅkā; it seems reasonable to infer the identity of the founder (Vamśakara) from whom both the Bādāmi line and that of the Kollipaṟa plates trace their descent. Pulakeśin II is expressly referred to a Mahārāja at the end of the Satārā grant of Viṣṇuvardhana,[10] and this furnishes another sure link in the chain of identities. The names Pṛthvīpati for Kīrttivarman I. and Rājāditya Pṛthuvikrama for Dharāśraya Jayasimha, we are unable to explain with the records now accessible to us; but these are only titles, and might very well have been employed in inscriptions that have either not come down to us or still await the eye of the fortunate explorer. It is clear, however, that even by the time of Arikesari I, the donor of the Kollipaṟa plates, the memory of their ancestry had begun to fade out somewhat, and it is no surprise that the generations before Vinayāditya Yuddhamalla I are omitted in all later genealogies of the Vemulavāḍa line accessible to us. In this respect they furnish a striking contrast to the Cāḷukyas of Kalyāṇī, and even to those of Mudugoṇḍa.

10. IA. xix p. 310.

Let us now trace the history of the rulers of this line with the aid of the inscriptions and of Pampa's references to historical events in the introductory verses to his *Vikramārjuna vijaya* (Bhārata) and elsewhere in the same work; we shall draw upon other contemporary sources also to the extent necessary for the elucidation of our subject. A word may be said on chronology before entering on the details of individual reigns. The Parbhaṇī plates are dated Ś. 888, A.D. 966, and this is the date for Arikesari III, the last ruler of this line we know anything of. Eight generations intervene between him and Yuddhamalla I (Vinayāditya), and allowing twenty-five years to the generation on an average, two hundred years must have been the interval between the end of Yuddhamalla I and the beginning of Arikesari III; and if we assume that Arikesari III had been ruling for say ten years before the date of the Parbhaṇī grant, we should get to somewhere about 956-200 or A.D. 756 for the close of the rule of Yuddhamalla I; as a matter of fact we have the date Ś 653 (A.D. 731) for him in the Balsar plate which probably refers to a time when Yuddhamalla was still in his original home in the Lāṭa country. And this is virtually an independent corroboration of the scheme of identities accepted above.

Of Yuddhamalla I we read in the Kollipaṟa plates: after Rājāditya,

> tato' bhavat sutaḥ śrīmān śrī Rāmo Rāmavikramaḥ|
> viśvarāḍ-Vinayādityo Yuddhamallo Nṛpāṅkuśaḥ || 7 ||
>
> gurudorddaṇḍa-pracaṇḍa-sphurad-asilatikā-nīta-rājanya-lakṣmīkarā-yugmotthāpitendu-dyuti-hara-dhavalāmbhoja-līlātapatraḥ |
> dharaṇī-dikcakrāvālāntage-nikhilaguṇodbhāsi-rājāśrayaḥ-sāgaravelā-veṣṭito-dyat-sakalavasumatī-vallabho-Yuddhamallaḥ || 8 ||

These two verses just compare the valour of Yuddhamalla to that of Rāma and affirm that he was an emperor (Viśvarāṭ) the excellence of whose qualities had won recognition over the entire world. There follows a prose passage which from its position may be applied either to Yuddhamalla himself or to his son who is mentioned in the verse following, and this ambiguity might well have been intended by the author of the *praśasti*. This passage, once more, is not history but empty praise:

Turuṣka-Yavana-Barbara-Kāśmīra-Kāmbhoja-Magadha-Mālava-Kalinga–Ganga-Pallava–Pāṇḍya–Kerala–prabhṛti–nara-pati-samabhyarcita-pādapīṭhaḥ, bhagavan–Nārāyaṇa–vara-varāha-lāñchana-vaśīkṛtā-śeṣa–viśvambharācakraḥ.

After giving an impossible list of rulers of different nations who made obeisance to Yuddhamalla (or his son), this text ascribes the success attained in the subjugation of the world to the merit of the Boar-crest got as a boon (by the family of Cāḷukyas) from Lord Nārāyaṇa.

The records of a later time, curiously enough, give more specific details about Yuddhamalla I than the Kollipara plates issued by his son. Thus in the Vemulavāḍa inscription[11] we have:

samasta-vibudhajana-samstūyamānaḥ sakala-kalā-kamalaika-rājahmsaḥ Kamsa–mathana iva kamalākarikṛta–vakṣasthalaḥ sthāṇuriva bhasmasātkṛta-samastā-ripuraḥ prakhaṇḍa-pravṛddhodaya-prabodhitaāśeṣa-pravāhāmbhojā-nvarthīkṛta–Vinayāditya-namādheyaḥ prasādhitā-śeṣa–digmaṇḍalaśca para-maṇḍalaika-rāmaḥ Cāḷukyatilakaḥ śrī Yuddhamallo nāma rājā babhūva |

so'yam kilā–śāsad–ananya–śāsya–sapādalakṣam–kṣitim–akṣa-tājñaḥ |
samasta–rājendra–kirīṭa–koṭi–māṇikyaraśmi (ḥ)-prakar(ā) rcitāṅghriḥ || 2 ||

yaḥ Podane saudhamayī(m) gajānām vidhāya vāpīmapi taila pūraiḥ |
sa sarva-sekaṁ satataṁ vitene cāsraiḥ kucānām ari-sundarīṇām || 3 ||

sa Ciṭrakūṭam bahucitrakūṭam śakyā surendrairapi nopayātum|
trivargayuktaḥ praṇatārivargaḥ svabhāva-durgam kila tam jahāra || 4 ||

The prose passage is mere praśasti giving no historical data and may be passed over. The first of the verses states that Yuddha-malla ruled the Sapādalakṣa country and had many feudatories. The next verse says that in Podana the king gave constant and

11. I am following the better readings of Rao Bahadur C. R. K. Charlu in all my citations from this inscription. It is a pity they have remained unpublished till now.

complete oil baths to elephants in artificial tanks built of brick and mortar and filled with oil, and making an interesting use of the poetic convention which compares the globes of elephants to the breasts of women, it adds that the breasts of enemy women were constantly bathed in their tears. The last verse credits Yuddhamalla with the capture of the natural fortress of Citrakūṭa, from whom is not stated.

Pampa gives three verses (I, 15-17) to Yuddhamalla in which he refers to Yuddhamalla's rule in the Sapādalakṣa country and his numerous feudatories, and says that a measure of his prosperity was to be had in his arranging for the daily bath of five hundred elephants in oil tanks in Podana. His text may be cited for easy reference:

15. śrīmaccaḷukya vamśa-
vyōmāmṛta-kiraṇanenipa kāntiyanoḷakoṁ-
ḍī mahiyoḻ ātma vamśa śi-
khāmaṇi jasameseye Yuddhamallam negaḻdaṁ ||

16. ātaṁ nijabhujavijaya-
khyātiyanāḷdāḷdan-adhikabalan-avanipati
vrāta-maṇi-makuṭa-kiraṇa-
dyōtita pādaṁ sapādalakṣakṣitiyaṁ ||

17. ēnaṁ pēḻvudo siriyu-
ddāniyan eṇṇeyoḷe tīvi dīrghikegaḷanaṁ |
tānṛpati niccal-aynū-
rāneyan-avagāham-irisuvam-Bōdanadoḷ ||

The Parbhaṇī plates give two verses to Yuddhamalla I, brief and business-like statements of facts known from the other sources cited above:

astyādityabhavo vamśas-Cālukya iti viśrutaḥ |
tatrābhūd-Yuddhamallākhyaḥ nṛpatirvikramārṇavaḥ || 2 ||
sapādalakṣa-bhū-bhartā taila-vāpyām sa Podane |
avagāhotsavam cakre śakra-śrīr-mmada-dantinām || 3 ||

This inscription, like Pampa, considers the oil bath of elephants in Podana a proof of the king's vast material resources. Both Pampa and this inscription have nothing to say of the capture of Citrakūṭa for which the Vemuḷavāḍa inscription is our only authority.

Four questions arise out of these facts related about Yuddhamalla I—(1) Why did he leave Lāṭa to seek his fortunes else-

where? (2) What country is meant by the expression Sapāda-lakṣa-kṣiti (bhū) where he established his kingdom? (3) Where was Citrakūṭa and what is the meaning of the statement that Yuddhamalla captured its impregnable fortress? Lastly, (4) where was Podana where Yuddhamalla caused oil wells to be made for the use of his elephant corps? Only tentative answers can be given to all these questions at present, and the suggestions offered below should be treated as subject to revision or confirmation in the light of fresh evidence. Vinayāditya Yuddhamalla was one of the three sons of Dharāśraya Jayasimhavarman and his lot was cast in difficult times. The Arab conquerors of Sindh were seeking to extend their way into Deccan, and one of Yuddhamalla's brothers, Pulakeśin by name, distinguished himself as the guardian of the northern frontier against the Arabs and earned from the grateful Cāḷukyan emperor Vikramāditya II the title of 'avanijanāśraya' the asylum for the people of the world.[12] Within a few years after that came the end of Cāḷukya empire brought about by the enterprise of the Rāṣṭrakūṭa Dantidurga who waged wars on the banks of the Mahī, Mahānadī and Narmadā, and in the Madhyadeśa even before he put an end to the Cāḷukya empire of Kīrttivarman II. In such unsettled times an able prince and good soldier like Yuddhamalla I who found no scope for the exercise of his talents in the small principality (Lāṭa) of his father and his elder brother might have resolved on purpose to seek his fortunes on a wider field. To determine what exactly he did with himself, we must know the location of the Sapādalakṣa country where he is said to have ruled, and of Citrakūṭa and Podana. Of these places Podana is easily identified with Bodhan in the Nizambad district of the Nizam's dominions. This is a place with ancient associations, and an inscription from the place dated Ś. 978 (A.D. 1056) mentions the fact that the Rāṣṭrakūṭa Indra had founded a Viṣṇu temple in that town. Its location taken along with the provenance of the three inscriptions discussed here, Vemulavāḍa in the Karīmnagar district, Parbhaṇī in Parbhaṇī district, and Kollipaṟa in Guṇṭūr district, leave little room for doubt that the centre of activity of the successors of Yuddhamalla I, if not of Yuddhamalla himself, must be located in the Nizam's dominions, particularly the eastern half of it known as Telingana, and Podana must be taken to mark a stage in this progress towards the east. Other facts confirming

12. DKD. p. 375; VII. Interl. Congress of Orientalists-Transactions pp. 211-38.

this view are not wanting; the Kollipara plates record a grant made to a Śaiva ascetic of Ēlēśvara to the north of the celebrated mountain Śrīśaila in the Karnūl district; the temple of Āditya and the land granted to it in the Vemulavāḍa inscription both lay in Vemulavāḍa itself, and in the Parbhaṇī plates, this city is expressly described as the rājadhānī (capital) of Arikesari III. It is certain that Vemulavāḍa became the headquarters of this branch of the Cāḷukyas at an early stage, probably under Arikesari I.

All the same, the identification of Sapādalakṣa and the elucidation of the reference to Citrakūṭa are by no means easy. The name Sapādalakṣa is generally applied to Śākambharī, Sāmbhār in Eastern Rajaputana, and its chief city is Ajayameru, modern Ajmer; likewise the name Citrakūṭa is applied in mediaeval inscriptions to Chitor, and the place is called a mahādurga,[13] a description which suits the indications contained in verse (4) from the Vemulavāḍa inscription. Another Citrakūṭa in Bundelkhand is known, but it is much more likely that we have to do with Chitor on the direct line from Lāṭa to Sapādalakṣa. That Yuddhamalla I established his rule in the Ajmere country in Eastern Rajaputana is, however, hard to believe in the absence of any traces of such rule. I think the best way of accounting for all the data we have regarding Yuddhamalla I is to suppose that he joined hands with the Rāṣṭrakuṭa Dantidurga, and played a prominent part in his wars in Madhyadeśa of which unfortunately no detailed account has come down to us. We may assume that he assisted Dantidurga in the capture of Chitor and the Sapādalakṣa country, and ruled the latter as his governor for a short while, and that the memory of this adventure, for it was nothing more either for Yuddhamalla or his chief, was carefully treasured in the annals of the family. Yuddhamalla ended up by accepting a fief at the hands of the Rāṣṭrakūṭa ruler which centred round Bodhan (Podana), as the reward for his services. And this became the base for the further achievements of the family.

The son of Yuddhamalla was Arikesari I, the donor of the Kollipara plates. In these plates we read of him:

abhavad-Vinayādityaḥ Nala-Nahuṣa-Dilīpa-Dundhumāra-pratimaḥ |
Arikesarīti nāmnā sūnuḥ kṣīrodadher-yathā śiśirāmśuḥ | 9 ||

13. H. C. Ray DHNI ii. p. 1191.

rājaśriyam vakṣasi bhāratīm mukhe vīraśriyam doṣi gurau svadakṣiṇe |
dik-cakravāla-bhramaṇodyatām dadhat kīrtti-pratāpe ripu-darpa–nāśane || 10 ||

vyākaraṇa–dharma-vid dvirada–tantra–dakṣaḥ sadā nyāya-nipuṇo dhanur–vidita–śikṣayā viśrutaḥ āyatim–upetavān jagati vaidya-śāstre 'dhikam śrīmad-Arikesarī nṛpaguṇaiḥ samāviṣkṛtah Samasta-bhuvana-rājalakṣmi-nivāsa–vakṣasthalaḥ svabhuja-balākṛṣṭa-śarāsana-jyālatā-vimukta - nārācaparam--parā - parājita - parāvanīpāla – samstūyamāna – raṇārjunaḥ śumbhad - ambhodhimekhalā - kalāpāvṛta - vasundharātala-sandhāraṇa - stmbhāyamāna - bhujārgaḷaḥ samastalokāśrayaḥ tribhuvanamallaḥ rājatriṇetraḥ sāhasa–Rāmaḥ ityetair–abhid-hānair-abhiṣṭutaḥ

The eloquence of this long praise is couched in very general terms; we gather that the king was brave in war and subdued all enemies and sustained the whole world; he had many titles; of his learning some details are vouchsafed, and he was an adept in such diverse subjects of knowledge as grammar, law, elephant-lore, logic, archery and medicine.

The inscription bears no date, and was apparently issued before the date of the achievements of the king recorded in our other sources. The faulty verse kalau vyāpte immediately following the passage cited above is only an ingenious praise of the Aṅkuṭa-gurukula and seems to contain no date in the Kaliyuga era as Mr. M. S. Sarma persuaded himself to believe when he edited the record in the Bhārati.[13a]

13a. Mr. M. S. Sarma after reading this paper has suggested to me the possibility that the Kollipara plates may be spurious and the 'Kalau vyāpte' verse may carry a date, albeit wrong, in the Kaliyuga era. The silence of the record on Yuddhamalla's achievements, his connection with Sapādalakṣa and Podana, not to speak of Citrakūṭa, may seem to lend support to this suggestion. But there is nothing in the record itself of a positive character that would justify a doubt about its genuineness. The omissions relating to Yuddhamalla do call for an explanation; but the Kollipara plates say nothing even of the much greater rulers of the Bādāmi line whom it just names and passes on. The family of Vemulavāḍa evidently began to brush up its annals and give itself an independent and respectable pedigree after it established itself as a powerful feudatory dynasty after the great deeds of Narasimha II and in Arikesari II's time, and then only partial success was attained in the effort; as the blank in the history of four generations shows. I do not see any good reason for rejecting the Kollipara record as spurious.

The names of places mentioned in the Kollipaṟa plates are all Telugu—Rāmaḍu Viṣaya Ūrige, Belmoga, Tuvatoru, Parivārtul, Pulceṟṟuval, Potuvodupi. Thus it seems probable that the village which was the subject of the gift must have lain in the Karnūl district near Śrīśailam, or in the Telingana area of the Nizam's state, which indicates the locale of Arikesari's rule. That he was a Śaiva himself in his religious persuasion may also be perhaps, inferred, though we cannot, of course, be sure of this.

The Vemulavāḍa pillar inscription has the following on Arikesari I:

> tasyā (Yuddhamallasya)-tmajo dakṣiṇa-bāhudaṇḍa-caṇḍāsidhārā–hata–vairi–ṣaṇḍaḥ |
> balād-gṛhītā-khila-Vengideśaḥ pāti sma pṛthvīm-Arikesarīśaḥ || 5

Here we have mention of a concrete fact unknown to the Kollipaṟa plates, viz., the forcible seizure of the 'entire Vengi deśa' by Arikesari I. Pampa also mentions this fact and adds the valuable information that this conquest of Vengi together with Trikalinga was made by Arikesari in the reign of Nirupumadeva. The verse (No. 20) in which this statement occurs has seldom been correctly reproduced or understood. But the text of the Karṇāṭaka Sāhitya Pariṣad edition read in the light of the verses in the Vemulavāḍa and Parbhaṇī inscriptions leaves no room for any doubt about the proper interpretation. The four verses of Pampa on Arikesari I may now be transcribed:

18. śrīpatige Yuddhamalla ma-
hīpatige negaḻte puṭṭe puṭṭidan-akhiḷa-
kṣmāpāla mauḷimaṇi kira-
ṇāpāḷita nakha mayūkharaṁjita-caraṇaṁ ||

19. Arikēsari yembaṁ suṁ
daraṅgan-atyanta vastuvam madakariyaṁ
hariyaṁ paḍivaḍegurccida-
karavāḷane tōṟi nṛpatigellaṁgoṇḍaṁ ||

20. Nirupama dēvana rājyadoḷ-
Arikesari Vengiviṣayamam Trigaḷiṁgaṁ-
berasottikoṇḍu garvade
bareyisidam pesaran-akhiḷa digbhittigaḷoḷ. ||

21. kṣatraṁ tējōguṇamā-
kṣatriyaroḷ nelasi nindudā negaḻdādi-
kṣatriyaroḷam-illenisidu
dī trijagadoḷ-esagid-esakam-Arikesari–yā ||

Verse 20 is crucial from our point of view, the rest being just rhetorical praise of Arikesari, beautiful as poetry but mentioning no concrete historical event. Verse 20 means that in the reign of Nirupamadeva, Arikesari made himself very famous (lit. had his fame engraved on walls viz., all the quarters) by his invasion and capture of Vengi and Trikalinga. Nirupama (Dhruva), the Rāṣṭrakūṭa king, is taken generally to have ruled from about A.D. 780 to 793,[14] a period which must have included the last years of the reign of Arikesari I according to the scheme of chronology suggested above. And we know from the Paithan plates, as interpreted by Kielhorn,[15] that Nirupama had differences with his elder brother Govinda II, and that Govinda sought the help of the rulers of Kāñchi, Vengi, and Māḷava, against his brother, though these rulers were otherwise hostile to the Rāṣṭrakūṭa family (pratirājas). But all this availed Govinda little; Nirupama succeeded in defeating him in open fight, and then proceeded to make his power felt by those who had taken the side of Govinda in the contest, in particular the hostile kings of the east and the north. The east here is a clear reference to Vengi, and Arikesari I as we learn from Pampa and the inscription of Vemulavāḍa played a decisive part in the war against Vengi which included Trikalinga within its sphere of influence for most of its history. The direct statement in the Vemulavāḍa inscription that Arikesari fought his foes with the sword in his right arm, and took all Vengi-deśa by force and ruled it, is thus seen to be an important statement of considerable historical value, and I think we may assume that parts of Telingana definitely changed hands as a result of Arikesari's campaign, becoming part of the Rāṣṭrakūṭa empire held as a fief by Arikesari and his successors from this time. And it is quite probable that Vemulavāḍa became the seat of their power in consequence. The single verse describing these occurrences briefly in the Parbhaṇī inscription confirms the suggestions put forward above on the strength of Pampa's reference to Nirupama's rule. That verse from the copper plate reads:

14. Altekar—*Rāshṭrakūṭas* pp. 52, 58-9.
15. EI. iii. pp. 104-5.

sakalingatrayām Vengim yo'vati sma parākramāt |
putro Jayaśriyah pātram tasyāsīd–Arikesarī ||4||
(Tasya is of course Yuddhamallasya)

As already indicated, the next four generations, Narasimha I Rājāditya, Yuddhamalla II, Baddega I, and Yuddhamalla III are disposed of by the Vemulavāḍa inscription in a single verse, which is not easily deciphered in its entirety; it says something about Yuddhamalla II, but what it is I cannot say at present. I refrain from reproducing this verse here. There is thus a blank in the history of the line for practically a whole century, and even Pampa and the Parbhaṇī plates give relatively little information on this period. Still, we shall follow them in some detail for the sake of completeness. First, Pampa:

22. Arikesarigātmajar-ari-
narapa śirōdaḷana pariṇatōgrāsibhayaṁ-
kara kararāyirvaroḷār
doreyene Narasimha Bhadradevar negaḻdar ||

23. avaroḷ Narasiṁgaṁgati-
dhavaḷa yaśaṁ Dugdhamallan-agrasutaṁ ta-
dbhuvana pradīpanāgi-
rda-vāryavīryaṁge Baddegaṁ piriya magaṁ ||

In verse 22 Pampa states that Arikesari I had two sons, Narasimha I and Bhadradeva, both renowned warriors. Verse 23 states that Narasimha I had for his first son the famous Dugdhamalla, who was like a light unto the world and whose valour was irresistible; his elder son was Baddega.

In the same strain, the Parbhaṇī plates have two anuṣṭhup verses covering the three generations of the two verses of Pampa:

Narasimho Bhadradevas-tejaḥ-kānti-nidhī svayam |
tasyābhūtām sutau sākṣāt–sūryācandramasāviva ||5||
tatrā-bhūn Narasimhasya Yuddhamallas-tanūbhavaḥ ||
Vandicintāmaṇistasya Baddigo-'Jani nandanaḥ ||6||

To Baddega's character and achievements, Pampa devotes no fewer than six stanzas, all of which are reproduced below except the last (No. 29) which is not of any great interest being simply praise of Baddega's liberality so often dwelt on before:

24. puṭṭidōḍātanoḷarivoḍa
puṭṭidudarivaṁge peṁpu peṁpinoḷāyaṁ |

kaṭṭāyadoḷ-aḷav-aḷavino-
ḷoṭṭaje puṭṭidudu pōlvarār Baddegaṁ ||

25. balvarikeyoḷ-arinṛpara pa-
ḍalvaḍe taḻtiṟidu raṇadoḷā vikramamaṁ
solvinam-āvarji(?)sidam
nālvatteraḍarikegāḷegamgaḷoḷītaṁ ||

26. vanadhi parīta-bhūtaḷadaḷ-ītane sōlada-gaṇḍaneṁba peṁ-
pina pesaraṁ nimircidudumallade vikramadiṁde nimdagu-
rvenal-iṟidāmtaram mosaḷeyam piḍivaṁ-tire nīrol-otti Bhī-
mananati garvadiṁ piḍiye meygali Baddegana-nna nāvanō||

27. mugilam muṭṭida peṁpu peṁpanoḷakoṇḍudyō-gam-
udyōgadoḷ
negaḷdājñāphalaṁ-ājñeyoḷ toḍardagurv-
-oṁd-oṁdagurviṁ-dagu-
rvugoḷuttirparimaṁdaḷaṁ jasakaḍarpa-
-ppannegam saṁdanī
jagadoḷ Baddegananan-āvaniḻikuṁ bhrūkōṭiyiṁ kōṭi-
yaṁ |

28. Mēru[va] pon kalpāṁghripa-
dārave rasadoṟavu parusavēdiya kaṇi bhaṁ
ḍāradoḷuṁṭene kuḍuva ni
vārita dānakke pōlvarār Baddeganaṁ ||

Verses 25 and 26 are of particular interest as stating that Baddega was victorious in forty-two great battles and thus earned the proud title of 'the soldier who knew no defeat' (solada-gaṇḍan); he fought his battles against Bhīma with all the ferocity of a crocodile in water and took him captive, a simile which recurs in a verse in the Parbhaṇī plates on Baddega to be cited presently. The rest is praise of the administration, heroism and liberality of Baddega. The verse from the Parbhaṇī plates on Baddega reads as follows:

nānā-durdhara-yuddha-labdha-vijayaśrī-saṁgamā-karṇanād-
Bhīmaḥ Pāṇḍava eṣa ityasuhṛdo yasmāt paraḥ(ṁ?) bibhyati |
Bhīmam bhīmaparākramaika-nilayaṁ taṁ-helayaivāgrahīd-
ugram grāham-ivāntarambu samare dorvikramād Baddigaḥ||7||

Recalling the statement of Pampa on the forty-two great battles won by Baddega, one is tempted to apply the first half of this verse to Baddega and to suppose that he was the victor in the numerous difficult battles, the Pāṇḍava Bhima of whom enemies stood in

great dread; but the demonstrative pronoun *yasmāt* in the second line links it up definitely with the *tam* in line 3, as also the play upon the name Bhīma; thus Bhīma, the enemy of Baddega, is first praised as the victor in many difficult battles, the very Pāṇḍava Bhīma come back to life; and him Baddega captured like the ferocious crocodile fighting in its own element, water, a comparison which suggests a well-known Purāṇic situation.

Now what are these forty-two battles and who is this great Bhīma? By our scheme of chronology, Baddega gets a date somewhere about the middle of the ninth century A.D., and we find that a little before this mean date we have the Eastern Cāḷukya ruler Narēndramṛgarāja-Vijayāditya II who is said to have waged a long war fighting day and night during twelve years a hundred and eight battles with the armies of the Gangas and the Rāṣṭrakuṭas; and a little later we have Cāḷukya-Bhīma who found that the Rāṣṭrakūṭas had occupied practically the whole of the Vengi kingdom, and that he had to reconquer it all over.[16] It does not need much argument to recognise that the forty-two battles in which Baddega distinguished himself as well as those hard fought engagements that proclaimed Bhīma's prowess as soldier must have been mostly identical with those 108 battles—a conventional number—of Vijayāditya II, and that the Bhīma captured by Baddega was no other than Cāḷukya Bhīma I. Baddega's fights were then all of them in the Rāṣṭrakūṭa cause and against the Eastern Cāḷukyas; he was the loyal and doughty champion, the 'solada-gaṇḍa' on the eastern marches of the Rāṣṭrakūṭa empire from the time of Govinda III to that of Kṛṣṇa II.

Of Yuddhalla III both Pampa and the Parbhaṇī plates have one verse each containing general praise of his valour, fame, and ability as ruler: thus Pampa:

ā Baddegaṁge vairi ta-
mōbaḷa daśaśatakaram virājita vijaya
śrī–bāhu Dugdhamallan–i
ḷā bahuvidha-rakṣaṇa pravīṇa kṛpāṇaṁ ||

and the Parbhaṇī plates:

16. DKD. pp. 396, 412.

lārya–nirjita–suradruma–kāmadhenoḥ dorvikrama–krama-tiraskṛta-Kārttavīryāt |
tasmād (Baddegād) ajāyata sutaḥ kamanīyakīrttiḥ śrī–Yud-dhamalla–nṛpatiḥ prathita–pratāpaḥ ||8||

The son of Yuddhamalla III was Narasimha II to whom the Vemulavāḍa inscription attributes a conquest of the Māḷavas and Gurjaras described at some length.

tataḥ sa rājanya-śiromaṇīnām pādāravindena hrdo'harad-yaḥ |
babhūva nāmnā Narasimha-devo dhātryām-abhūd-bhūri-dhṛtādhipatyaḥ||7||
yaḥ sapta dussādhataraṁ nṛpāṇām-nirjitya sadyas-samarāṅgaṇeṣu | vinyasya ke hastam-ato natābhāmstān Māḷavān yaḥ karadīcakāra ||8||
pratyudgatām Gurjjara-rāja-senām nirjitya rājā svayam eka eva
Kālapriye rājakadambakasya stambhe sva-śauryam vililekha śaile ||9||

As Narasimha II was the father of his patron Arikesari II, Pampa gives a very full account of the king and his achievements in no fewer than ten verses which supplement the details given by the Vemulavāḍa inscriptions with the important statement that Mahīpāla was the name of the Gurjjara king against whom Narasimha won his successes.

31. ātmabhavan-ā narādhipa
nātma janā Nahuṣa Pṛthu Bhagīratha Nala mā
hātmaran-iḻisi negaḻda ma
hātmaṁ Narasimhan-aṟivinoḷ paramātmaṁ ||

32. māṁkarisad-aṟivu guru vaca-
nāṁkuśamaṁ pāḻiyeḍege poṇardaribalamaṁ ||
kiṁkoḷe mā [ḻpeḍegaṇame]ni-
raṁkuśa–menisududu munisu Bhadrāṁkuśanā ||

33. taṟisaṁdu Lāḻaroḷ ta
ḷtiṟiḍ-eṟam pēḻe kēḻdu maṁḍalaminnuṁ
tiṟunīrikkuvudenisida
taṟi salavina calada balada kali Narasimhaṁ ||

34. siṁgaṁ masagidavōl Nara-
siṁgam taḻtiṟiye negaḻda nettarnabhadoḷ
keṁguḍi kavidaṁtādudi
dēṁ garvada peṁpo Sakala-lōkāśrayanā ||

35. Ḻlum māḷamumaṁ pā-
ṟēḻe taguḻdiṟidu Naragan-uripidoḍe kariṁ
kēḻisidātana tējada
bīḻalan-anukaripu vāduvogedurivurigal ||

36. vijayārambha purassara
vijaya gajaṁgaḷane piḍidu Ghūrjara rāja
dhvajiniyan-iṟidō-ḍisi bhuja
vijayade Vijayanuman-iḻisidaṁ Narasimhaṁ ||

37. siḍilavoleṟaguva Naragana
paḍegagidummaḷadinuṁḍeḍeyoḷuṇṇadeyuṁ
keḍedeḍeyoḷ keḍeyade niṁ
deḍeyoḷ nilladeyum-ōḍidam Mahipālaṁ ||

38. Gaṁgāvārdhiyoḷātma tu
raṁgamamaṁ misisi negaḻda Kāḷa priyadoḷ
saṁgata guṇan-asi-lateyana
suṁgoḷe bhujavijaya garvadim sthāpisidam ||

39. ā Narasimha mahīśa ma
nō-nayanapriye viḷōḷanīḷāḷake caṁ
drānane Jākavve dalā
Jānakigaggaḷame kuladoḷam śīladoḷaṁ||

40. posatalarda biḻiya tāvare-
yesaḻgaḷa naḍuvirpa siriyumākeya keladoḷ |
nasu masuḻdu tōrpaḷene pō-
lisu voḍe Jākavveguḻida peṇḍir doreyē ||

Verses 31 and 32 compare Narasimha to legendary kings of great fame like Nahuṣa, Pṛthu and so on, and praise his valour and knowledge in general, and give him the title Bhadrāṁkuśa. The mention of Lāḻas as Narasimha's enemies in v. 33, the title Sakala-lōkāśraya given to him at the end of v. 34, the burning and ravaging of the seven Māḷavas (v. 35),[17] the defeat of the Ghūrjara rāja in battle and the seizure of his elephants (v. 36) and the picturesque description of the cowering restless condition of Mahīpāla on whom Narasimha is said to have descended like a thunderbolt

17. This has been doubted, without adequate grounds, by B. V. Krishnarao and Narasimhachari, who seek other explanations of the phrase. But Pampa read in the light of the eighth verse of the Vemulavāḍa inscription dispels all doubts on this head. 'Seven Mālwas' is a conventional phrase as is well-known, cf. Seven Konkaṇas.

(v. 37) should all be noted as very valuable bits of history, that enhance the value of the superb poetry of Pampa. Verse 38 on the horses of Narasimha drinking the waters of the Ganges sounds incredible, but is quite within the range of probability after the mention of Mahīpāla of Kanauj, and the reference to Kāḷapriyā may be noted. The last two verses (39 and 40) describe Jākavve, the queen of Narasimha, by whose side even Lakṣmī seated in the midst of the white lotus seems a little lacking in lustre.[18]

Once more for a correct appreciation of the facts thus recorded in the Vemulavāḍa inscription and Pampa's *Bhārata,* we should turn to Rāṣṭrakūṭa history. Indra III (C.A.D. 915–8) is known to have led a successful expedition against Ujjain and Malwa; his horses are said to have crossed the Jumna resembling the ocean in its depth, and after his expedition the enemy city which was formerly Mahodaya—Great Prosperity–was reduced to Kuśasthalī–a meadow, a play upon two well-known names of Kanauj, the capital of the famous Gurjara–Pratīhāra ruler Mahīpāla I.[19] The terms of the Rāṣṭrakūṭa inscription on the Malwa campaign:

Yan mādyaddvipa–dantaghāta–viṣamam kāḷapriyaprāṅgaṇaṁ, i.e., whose rutting elephants made the courts of the Kālapriya (shrine) uneven by the strokes of their tusks,-recall distinctly the expressions of the Vemulavāḍa inscription (v. 9) on Narasimha engraving the letters of his fame on a stone pillar in Kālapriya. And a little before Indra III, another Rāṣṭrakūṭa emperor Kṛṣṇa II is said to have frightened some enemies into abandoning Kheṭaka, Khaira in the Lāṭa country, and the surrounding area,[20] and it is quite possible that Narasimha II took a hand in this war against the Lāṭas also. We thus see most clearly that the history of the Cāḷukya feudatories of Vemulavāḍa runs throughout as an illuminating foot–note to that of their suzerains, the Rāṣṭrakūṭas of Malkhed; their loyalty to the line with which their fortunes were so closely bound up would appear to have made them oblivious of their Cāḷukya extraction; at any rate their policy was in no way influenced either by memories of their original connection with the Cāḷukyas of Bādāmi whom the Rāṣṭrakūṭas had displaced, or

18. At XII 132 Pampa repeats the name of Jākavve and failure to note this led Fleet into an error regarding her name.

19. Cambay Plates. EI. vii. p. 26 v. 19.

20. *ib.* v. 13. I think Pampa shows that DRB. is wrong in rejecting this identification at EI. vii. p. 29 n. 3.

by thoughts of their kinship with the still flourishing Vengi branch of the Cāḷukyas.

The Parbhaṇī plates are not very useful for the reign of Narasimha II as they dismiss it in one verse containing a rhetorical play on the name of the king:

Kurvannivātra nijanāma yathārtham-uccair-āvirbhavad-bhuja-parākrama-ḍambareṇa |
śātāsi-tīvra-nakharāgra-vidāritā-rivakṣasthalo'-Jani tato Narasimha rajaḥ||9||

The son of Narasimha II by Jākavve was Arikesari II, the suzerain of the donor of the Vemulavāḍa grant and patron of Pampa. His exploits are naturally treated of at some length in the inscription and by Pampa, though as is only to be expected the few facts lie concealed in the midst of heavy laudatory padding. Let us first reproduce the text of the Vemulavāḍa inscription:

tasyodapādi balavat-paracakra-kumbhi-kumbhasthaloddhalana-dakṣa-kṛpāṇapāṇiḥ|
bhītānatāri-narapāla-kirīṭakoṭi-samghaṭṭitāṅghri-sarasīja-virājitābhaḥ||10
śrīmān mahīpatis-sākṣān-nāmnā vīro' (A)rikesarī |
prādurbabhūva tejasvī prātar-bhānurivodayaṁ||11||

samasta-sāmanta-śikhāmaṇīnām
prabhā-prapātāyita-śārvvarām sva-
samcāra-nārī-nayanāmbujānām
lakṣmīm himāsāra ivāhard yaḥ||12||

sāmantān daṇḍamukhyān-nijabhuja-parighā-prasphurad-khaḍgadhārā-
nīrāmbhorāśī-magnām turaga-karighaṭā patti-sampatti-yuktān|
kṛtvāpaḷyāryyam-āryyah svajana parijanaiḥ sannihatyājiraṅge
kruddhe Govindarāje[21] śaraṇamupagato rakṣito yena Bijjaḥ ||13||

devīm Revakanirmmaḍim kṣitipater-Indrasya putrīn-nutām
Paulomīmiva Vāsava(ḥ) Śriyam-iva Śriman Muradhvamsakaḥ|

21. The letters *Je* and *śa* have very unusual forms; but as we shall see, the correctness of the reading (C. R. K.'s) is confirmed by Pampa. p. 234 1.14.

strīratnam pariṇīya yena niratam tasyāḥ sapatnī kṛtā
nūnam sapta-samudra-mudrita-mahī(m) mānon-
natenādhunā||14||

The following prose passage which closes Arikesari's praśasti is full of sound jingles (śabdālaṅkāra) and of no historical interest whatsoever and need not be reproduced. The grant section of the inscription may be reserved for discussion at the end of our discussion of Arikesari's reign. Even the five verses reproduced above give out remarkably little history; they just manage to state that Arikesari gave protection to Bijja who sought refuge with him from the anger of Govindarāja, and that the queen of Arikesari was Revakanirmmaḍi, the praiseworthy daughter of the king Indra.

If now we turn to Pampa, we find that he gives no fewer than eleven verses to the praise of Arikesari, but most of them lack historical interest being merely laudatory. Verse 41 giving the name and parentage of Arikesari may be reproduced:

ā Jēkavvegaṁ-ā vasu
dhā Jaya-sadvallabhaṁgam-ati viśada-yaśō
rājitanenip-Arikēsari
rājaṁ tējōgni magna ripunṛpaśalabhaṁ.||

A brief summary of the contents of the remaining verses follows, the text being reproduced only in one or two cases of particular interest to us:

42. Praise of the liberality and valour of Arikesari.

43. His childhood and early intimacy with elephants.

44. This verse is of some interest. In it the poet says that Arikesari was cradled on Indra's arm, and that there was no king equal to him. The statement is clearly meant to prepare the way for the identification of Arikesari with Arjuna, the son of Indra, which animates the entire poem. But it has also been suggested by Mr. Timmappaya[22] with great plausibility that there is here also a reference to king Indra who was perhaps the maternal uncle and later the father-in-law of Arikesari; on this view Jākavve was sister of Rāṣṭrakūṭa Indra III and Revakanirmmaḍi his daughter. Political allegiance and martial loyalty led to close dynastic alli-

22. p. 46.

ances between the suzerain and vassal lines of rulers. The text of the verse may be reproduced

> ruṁdrāmbhodhi parīta ma-
> hīmdraradārārinnarī narēndraṁ sākṣā-
> diṁdraṁ tānene sale nega-
> ḻdiṁdrēṁdrana tōḷe toṭṭilāgire baḷedam ||

Verse 45 states that Manuja–martāṇḍa–nṛpa (Arikesari) was strong in War and in his learning; No. 46 that his childhood was spent by him in an ocean of enemy's blood like a leech; No. 47 that his eyes did not succumb to an enemy force or to the charms of other women (besides his wedded wife) though they might excel Urvaśī; No. 48 that Priyagaḷḷa (thief of affection, a title of Arikesari) was noted for heroism and liberality; No. 49 that other sāmanatas were not his equals in anything but their praśastis beginning 'svasti samadhigata pañcamahāśabda'; No. 50 that Arikesari excelled Baddega and Narasimha by four digits in his valour and liberality; and lastly, No. 51 proclaims that Arikesari is the hero of the poem. But much more interesting for history is a prose passage which occurs in the ninth āśvāsa just before verse 53 at page 234 of the Karṇāṭakasāhitya pariṣad edition (1931) 11. 14-22:

> Caḷukya kuḷa tiḷakanappa Vijayādityaṁge Goviṁdarājaṁ muḷiye taḷarade peṟagikki kāda śaraṇāgata-Jaḷanidhiya peṁpumaṁ, Gojjigan–eṁba sakaḷa–cakravarti besase daṁḍuvaṁda mahāsāmaṁtaraṁ maraliṟidu gelda sāmanta-cūḍāmaṇiya bīramumaṁ, anativartiyāgi mārmaleva cakra-vartiyaṁ kiḍisi tanna naṁbi baṁda Baddegadevaṁge sakaḷa sāmrājyamanōrantu māḍi niṟisid Arikesariya tōḷ-valamumaṁ, samada gajaghaṭāṭōpaṁ berasu nelanadire vaṁdu tāgida Kakkalana tamman–appa Bappuvan–aṁka-kāṟanan oṁde madāndha-gandha-siṁdhuradoḷōḍisida vai-rigaja–ghaṭā–vighaṭanan–adaṭumaṁ.

Arikesari giving protection to Bijja against the wrath of Govindarāja forms the first in the series of incidents noted by Pampa in this prose passage; and Pampa adds a number of further details which, I think, must be treated as pertaining to the same context. The first incident and perhaps the main event in the whole series was considered sufficiently important by Pampa to be repeated in another context in almost the same terms as above; thus we read in āśvāsa 14 (p. 412 11. 15–17):

Gojjigan-eṁba sakaḷa-cakravarti muḷiye tanage śaraṇagatanāda-
Vijayādityanaṁ kāda ballāḷtanadoḷ śaraṇāgatajaḷanidhiyuṁ.

It goes without saying that Bijja and Vijayaditya are alternative forms of one and the same name like Govindarāja and Gojjiga. The facts mentioned by Pampa then are the following: A Cāḷukya Vijayāditya fled to Arikesari from Govindarāja's wrath; Govindarāja was sakala–Cakravarti, i.e., most probably the suzerain of both Vijayāditya and Arikesari; when Arikesari gave shelter to Vijayāditya, Govinda sent many sāmantas against him and Arikesari fought and won against all and became the crest jewel of the Sāmantas; he then fought against Govinda himself and ruined him and bestowed the empire on Baddega who had come to him for aid; lastly, with only one elephant he overthrew Bappuva, the younger brother of Kakkala, when Bappuva came and attacked him with a host of elephants that made the earth tremble.

Again we turn to Rāṣṭrakūṭa history for light and again we are rewarded, though this time Pampa tells us rather more than can be fully explained by the Rāṣṭrakūṭa records now available. Fleet was right in suggesting that the emperor Gojjiga was Govinda IV who ruled roughly from A.D. 918 to A.D. 934. He added: 'Vijayāditya is doubtless the Eastern Cāḷukya king Kollabigaṇḍa-Vijayāditya IV, for whom we have the date 918'. This looks much more probable now with the dates assigned above to Govinda than with the only dates known to Fleet viz., A.D. 930, 933.[23] Even so I do not consider this identification probable. Vijayāditya IV ruled only for six months, and it seems unlikely that he came into such violent conflict with Govinda IV during this short period which might or might not have fallen in the opening year of the emperor's rule. Govinda had indeed much trouble with his vassals, but on all accounts it developed after he had been on throne for some years. I think therefore that Vijayāditya who sought the protection of Arikesari was not the Eastern Cāḷukya king, but a less known vassal who must have been ruling elsewhere in the Rāṣṭrakūṭa empire. At the moment I am unable to say anything more about him. If Fleet's suggestion is allowed to hold the field in the absence of a more likely identification of Vijayāditya, then Arikesari's protection of Vijayāditya will stand by itself as a separate event unconnected with the rest of the incidents enumerated by Pampa; this is by no means impossible, but seems unlikely.

23. DKD. p. 381.

Directly and indirectly Rāṣṭrakūṭa inscriptions suggest that Govinda IV was a libertine who neglected the affairs of state for the carnal pleasures of life, and brought, by his conduct, much discredit on his family. Even the elaborate defence set up for him in one of his own *praśastis* (Cambay plates)[24] seems to give his case away, for we find few inscriptions stating, as this one does, that the king was not cruel to his elder brother, did not bring discredit on himself by liaisons with the wives of his close relations, nor qualify for being considered a *piśāca* by neglecting all observance of purity and cleanliness. And the inscriptions of his uncle and successor Amoghavarṣa III roundly assert that the sāmantas joined together and requested him to assume the sovereignty in order to preserve the nobility of the Rāṣṭrakūṭa kingdom (Raṭṭa-rājya-mahimālambanārtham). The personal name of Amoghavarṣa III was Baddega. Thus if we may accept Pampa's statements at face value, we may suppose that the differences between Govinda IV and Vijayāditya started the train of events which ended the rule of Govinda and brought his uncle to the throne, and the part of Arikesari in these transactions was of decisive importance, for he openly espoused the cause of Vijayāditya, fought against the sāmantas sent by Govinda, and having ruined the chances of Govinda in open battle, bestowed the empire on Baddega. But probably we have to make some allowance for the exaggeration natural to a poet's description of his patron's achievements; when all adjustments have been made, however, it would still be seen that Arikesari's part in the political revolution in the Rāṣṭrakūṭa state was no mean one.

We have still to identify Bappuva, the brother of Kakkala, who fought on the side of Govinda and was defeated by Arikesari; the Kakkala mentioned here could not have been the last Rāṣṭrakūṭa ruler of that name who came much later; he must be identical with the person of that name mentioned in an unpublished Śilāhāra grant as having been overthrown by Amoghavarṣa III,[25] and Bappuva at the head of his elephant corps must have fought with him for Govinda, and lost.

The Parbhaṇī plates are quite vague on Arikesari's reign though they give it two very long verses and a shorter one:

24. V. 22 EI. vii. pp. 26 ff.
25. Altekar, *Rāshṭrakūṭas*, p. 110.

mādyad–durdhara–vairivāraṇa–śiraḥ kuṭṭāka–doḥ–śālinaḥ
simhasyeva sa kesarīha Narasimhasya sphuradvikramaḥ|
tasyāsīd–Arikesarīti tanayo' śūnyam kṛtam śaiśavam
yenodyat–kṣitibhṛt–pradhāna–kaṭakakrānti–kramakrīḍayā||10||
āryacchatrayugam himāmśuviśadam haimāravindāmkitam
māyūrātapavāraṇam ca kakudam yad–yauvrājya–śriyaḥ|
agre dhāvati yasya samprati sa kim varṇyeta vīrāgraṇī-
rdurvāroruparākramo guṇamaṇiḥ sāmantacūḍāmaṇiḥ||11||
Rāṣṭrakūṭakule khyāte Jātā Lokāmbikā satī|
vīraśrīriva vīrasya tasyāsīt sudatī priyā||12||

It will be seen that Arikesari's queen is called Lokāmbikā who is also described as a Rāṣṭrakūṭa princess; Lokāmbikā may be a title of Indra's daughter Revakanirmmaḍi mentioned in the Vemulavāḍa inscription, or she might be another wife of Arikesari.

Before taking leave of Arikesari II we should gather the data from the grant portion of the Vemulavāḍa inscription which has guided our investigation so far. The prose passage (ll. 53-71) that follows verse 14 cited above is totally devoid of any interest, being mere word play. Then we get a number of titles for Arikesari viz., Pāmbarāmkuśan, Ammanagandhavāraṇam, Gandhebha– vidyādharan, Ārūḍhasarvajñan, Udāttanārāyaṇam,. . . .[26] Guṇanidhi, Guṇārṇava, Śaraṇāgata–vajrapamjara, Priyagaḷḷa, Tribhuvanamalla, and Sāmanatacūḍāmaṇi. It will be recalled that two of these titles Priyagaḷḷa and Sāmantacūḍmaṇi are given by Pampa also, and that the title Śaraṇāgata–vajrapañjara recalls Pampa's Śaraṇāgata–Jaladhi. Then we get the name of Arikesari's mahāsāndhivigrahi Guṇakarasa. This is followed after a gap (ll. 83-84) by the mention (in oue verse 15, ll. 85-88) of Nāgamārya, the satrādhipāla (Superintendent of feeding houses) of king Baddega, and his son Peddaṇārya, the tantrapāla of King Guṇārṇava (i.e. Arikesari). It seems probable that king Baddega mentioned here is no other than the Rāṣṭrakūṭa Amoghavarṣa III, and if that be so, the Vemulavāḍa inscription must be placed after the revolution which put him on the throne, and this seems quite likely from the references contained in verse 13 of the record. Baddega Soladagaṇḍa, the ancestor of Arikesari II, seems too far removed in time to be identified with the homonymous ruler mentioned here. At Peddaṇa's request, 100 *nivartanas* of arable land were given on the occasion

26. I omit one title here not easily read.

of Uttarāyaṇa saṁkrānti for a *sattra* for the feeding of persons who came to worship at the Āditya shrine built by him, and another field of 8 *nivartanas* for a fresh water tank (pānīya-bhūmi-kṣetram). The donor was clearly Arikesari himself, the ruler of Lemulavāḍa (ll. 93-5)-leṁbulavāṭakapatta (ṇaiśā) nakoṇe śrī mad Arikesarikṣitipatiradāt. Mr. B. V. Krishna Rao makes Guṇakarasa, the donor;[27] Guṇakarasa is mentioned only as standing in some relation of federal superiority to Nāgamāryya as the phrase *tatpādāmbhoja* after his name in l. 83 shows; the exact relation is obscured by the gap in the inscription. Then follows an enumeration of the witnesses to the gifts recorded, and the enumeration is of considerable interest to a study of social and economic institutions of ancient India. The text (ll. 95-101) reads:

> tatra Rājeśvar(a) Āditya-gṛha Baddegīśvara Nagareśvara prabhṛti catus-sthānādivāsas-sākṣī
> Mallikārjjuna - Vyaktalingi, - Vidyārāśi - vyākhyāni – bhattārakāśca sākṣiṇaḥ||
> Candraśreṣṭhiprabhṛtayo nava śreṣṭhinaśca sākṣiṇaḥ||

We notice here first the four shrines are themselves made witnesses; then three teachers (vyākhyāni means expounder) named Mallikārjuna, Vyaktalingi, and Vidyārāśi–all clearly Śaiva names–and lastly nine merchants of the town, the chief of them being Candraśreṣṭhi. The inscription ends with the usual verses of a formal nature, but at the very end is mentioned the fact that the field which was the subject of the gift bore a *siddhāya* (money-tax) of twelve drammas—asya kṣetrasya dvādaśa dramma siddhāyaḥ.[28] It has been suggested by Mr. Narasimhachari that Pampa might himself have composed the Vemulavāḍa praśasti; he thinks that verses 3 and 4 of the inscription bear such a close resemblance to the verses I, 16 and 17 of Pampa that a common authorship is to be assumed, for 'Pampa, a great poet as he was, would not have condescended to translate the stanzas of the inscription if its author were any other inferior versifier'.[29] The last clause in this citation badly begs the question; still the suggestion is not unplausible, and if it is accepted, the inscription would cease to be an independent

27. JAHRS. vi. pp. 171-2.
28. Mr. B. V. Krishna Rao misses this point when he suggests p. 189 n. 36 the correction of *dramma* into *dharma*.
29. JAHRS. vii. p. 164.

source corroborating or corroborated by Pampa. After all both are compositions of the reign of Arikesari, and one may doubt if the resemblances between them are more than what may be expected in the circumstances.

The Parbhaṇī plates carry the history of the line two generations further. The son of Arikesari II was Baddega II who might have owed his name either to the presence of a Baddega among his ancestors, or more likely, to Arikesari's loyalty to the Rāṣṭrakūṭa Baddega Amoghavarṣa III. His son was Arikesari III, the donor of the Parbhaṇī plates who calls himself the vassal of Kṛṣṇa III, the date of the grant A.D. 966 falling towards the very end of the reign of that emperor. The text of the inscription contains little of interest on these two reigns; it reads:

Bhadradeva iti nandanastayoḥ śaktimān savinayas–sadakṣiṇaḥ|
śailarājatanayā–triṇetrayoḥ Kārttikeya iva kīrttimān–
abhūt||13||
ānandaṁ candravac–cakre kāntyā kuvalayasya yaḥ||14||
tasmādajani tejasvī rājā nāmnā (A) rikesarī |

We see then that there is nothing of interest besides the names of the kings in these two verses. We may note also that the formal part records the grant of a village in Sabbideśa, a well–known division of Telingana, boundaries given by mentioning the names of villages around the one that forms the subject of the gift; the grant is made by Arikesari to the Jaina temple of his father Baddega known by the name of Śubhadhāma–jinālaya in the capital for repairs and worship—Lembulapāṭaka–nāmadheya–nijarājadhānyām nijapituḥ śrīmad-Badyagasya Śubhadhāma-Jinālayākhya vasateḥ khaṇḍa-sphuṭita-navasudhākarma-balinivedyārtham. In recording this grant Arikesari III is described as the feudatory of Akālavarṣa Kṛṣṇarājadeva, and gets a number of titles more or less the same as those of his grandfather Arikesari II. These need not be reproduced.

But the apparent lack of political interest in these two reigns is more than made up for by the interest that is evoked by the name of the donee; for the person to whom Arikesari III made the grant was one of the most celebrated among the numerous Jaina writers who have enriched the literatures of India in many languages. It was Somadevasūri, well–known to students of Sanskrit literature . Our inscription traces (vv. 15-18) his *vidyā-vaṁśa,*

and then proceeds to record data which leave no room for any mistake about his identity. We learn that in the Gauḍa-samgha, there was a famous scholar by name Yaśodeva; he was a muni who by his tapas had established contact with the Śāsanadevatas. His pupil was Nemideva, an expert in Jaina doctrine and an axe to the pride of the disputants of rival faiths. Nemideva produced many pupils of great excellence like the ocean yielding jewels. Most notable among these, with a hundred before him and a hundred after, was Śrī Somadeva, the abode of learning, the seat of fame, whose beauty was enhanced by his character. On Somadeva it is best to let the text speak for itself:

Śrī Somadevas-tapasaḥ śrutasya sthānam yaśodhāma guṇorjjitaśrīh | api ca|yo bhagavān ādarśas-samastavidyānām viracayitā Yaśodhara caritasya, karttā Syādvādopaniṣadaḥ kavitā (kavayitā?) cānyeṣām api subhāṣitānām, akhila-mahāsāmanta sīmanta-prānta-paryyasto-ttamsa-srak-surabhi-caraṇaḥ sakala-vidvajjana-karṇṇāvatamsībhavadyaśaḥ puṇḍarīkaḥ, sūrya iva sakalāvanībhṛtām śiraḥ śreṇiṣu śikhaṇḍa maṇḍanāyamāna pādapadmo' bhūt.

Somadeva was the author of *Yaśodharacarita* (otherwise called *Yaśastilaka-Campū*), *Syādvādopaniṣad* and other works, and was highly respected by many rulers in the land who did honour to themselves by honouring him. We know from the oft-quoted colophon to the *Yaśastilaka* that Somadeva composed that work in Ś. 981, i.e., seven years before the date of the Parbhaṇī plates, when Kṛṣṇa III was still residing at Melpāḍi, after his campaigns in South India and his feudatory Badyaga, the eldest son of Arikesari II, was ruling at a place called Gangadhārā overflowing with wealth: Śrīmad Vadyagarājasya lakṣmīpravardhamāna-vasudhārāyām Gangadhārāyam vinirmāpitam idam kāvyam iti. In the colophon to his *Nītivākyāmṛta*, evidently written after the date of the Parbhaṇī plates, Somadeva calls himself, among other things, the priyaśiṣya (beloved pupil) of Śrī Nemidevabhagavān. And his affinity with the Gauḍa sangha has been traced by Dr. Raghavan in Somadeva's references to Dharmāvaloka, a ruler of Rāṣṭrakūṭa extraction ruling in Bodhgaya, in the tenth century A.D.[30] Pampa and Somadeva, both Jains, two of the greatest names in mediaeval Indian literature, shed their lustre on the Court of the Cāḷukyas of Vemulavāḍa.

30. New IA. vi. 3, June 1943 pp. 68-9.

The Parbhaṇī plates were composed by Kavi (poet) Peddaṇa Bhaṭṭa and engraved by Reva of the Śubhadhāmajinālaya, as we learn from the concluding verse of the record. Peddaṇa, the author of the praśasti, may well be identified with his namesake mentioned as the son of Nagamārya in the Vemulavāḍa inscription.

I cannot end this paper without expressing my deep sense of gratitude to Mr. Mariappa Bhat, Lecturer in Kannada in the University of Madras, for his reading with me the relevant passages of Pampa's great work and of Timmappayya's Nāḍoja Pampa to which he drew my attention; also to Mr. Ananta Rao, research student in the department of Indian history and Mrs. Kharve (a former research student) for large help with Marathi articles which they patiently summarised for me.

SOME PROBLEMS OF THE MĀṆḌŪKYA-KĀRIKĀ

By

T. M. P. Mahadevan

I

In the course of his introduction to *The Āgamaśāstra of Gauḍapāda*,[1] Professor Vidushekhara Bhattacharya makes the following salutary remark: 'When there is no contradiction nor any incongruity, why should we not accept the tradition, as far as possible?[2] In spite of this observation of his he rejects the evidence of tradition on many points, apparently because he finds contradictions and incongruities. Yet it is worthwhile examining if there are real and insurmountable difficulties in following the Advaita tradition regarding the composition and character of the *Māṇḍūkya-kārikā.*

The traditional Advaita view is (i) that the twelve mantras beginning with 'om ity etad akṣaram' constitute the *Māṇḍūkya Upaniṣad,* (ii) that the *Kārikā* consisting of four chapters is the work of Gauḍapāda, an early teacher of Advaita, (iii) that the 29 verses of the first chapter form a commentary on the Upaniṣad, and (iv) that the following three chapters seek to establish the truth of non-duality through such reasoning as may be found in support of Scripture.

Professor Bhattacharya accepts whole-heartedly only one of these propositions, viz. that Gauḍapāda is the author of the *Kārikā,* and calls in question the others. After briefly noticing his partial agreement with tradition, we shall consider the grounds on which he feels constrained to differ therefrom and see if they really warrant disagreement.

1. Published by the University of Calcutta (1943). We shall refer to this book in the foot-notes as *Āgamaśāstra*.
2. Ibid, p. lxxi.

II

As against Walleser who thinks that there was none named Gauḍapāda who is believed to have been the author of the *Māṇḍūkya-kārikā,* that there existed long before the time of Śaṅkara a philosophical school in the country of Gauḍa and in the same district in which Buddhism flourished till the eighth century, and that this school for the first time put the traditions of the Vedas and the Upaniṣads in the form of a *śāstra* (a school doctrine) and embodied it in a collection of sayings consisting of the four *pādas* of the *Gauḍapādakārikā,* Professor Bhattacharya believes that tradition is right in ascribing the work to Gauḍapāda, for the reason that a work cannot be the production of the whole people of a land, though, written by a single individual, it may represent the views of the entire country to which he belonged. In this connection he quotes the view of Bālakṛṣṇānanda Sarasvatī (17th century A.D.) that in the country of Kurukṣetra there was a river called Hirarāvatī on whose banks there were some Gauḍa people, the pre-eminent of whom was Gauḍapāda, and that as the Ācārya was absorbed in deep meditation beginning from the *Dvāpara* age, his proper name is not known to modern people and so he is celebrated by the class-name of the Gauḍas.[3]

Though Professor Bhattacharya grants that Gauḍapāda was the author of the *Kārikā,* he is not prepared to believe that the *Kārikā* is a single work in four chapters. He is of the view that the four prakaraṇas are independent treatises which were put together in a volume under the title of the *Āgamaśāstra.*[4] According to him, the attempt of the commentator, whom tradition identifies with Śaṅkara, to show the interconnection of the chapters is a miserable failure. Introducing the second prakaraṇa Śaṅkara[5] says that though it is declared in the first chapter that there is no duality, yet as it is merely an expression of *āgama,* the second chapter is written to support it by reasons. Professor Bhattacharya finds fault with this statement, because though the second chapter advances various arguments, the first is not devoid of them. And he asks, "If the connexion between Books I and II is really as it is shown by Ś [Śaṅkara] to be, then why is it that

3. Ibid, pp. lxiii-lxxi.
4. Ibid, p. lvii.
5. Or whoever the commentator was; the identity is of no consequence for the present discussion.

the author of Book II himself does not say so just at its beginning though he could do so easily?" At the commencement of the third chapter, Śaṅkara says that non-duality can be understood not only by āgama, but by reasoning (*tarka*) as well, and that consequently to exhibit the reasoning the third chapter is required. The Professor's objection to this is that if Śaṅkara were right, the object of the second and third chapters must be the same, viz. to formulate the arguments for non-duality. But, then, why should there be two chapters at all? Cannot all the arguments be included in one? The fact, according to Prof. Bhattacharya, is that non-duality is mentioned only incidentally in the third chapter, and as such is not discussed. The purpose of the fourth chapter, as stated by Śaṅkara, is the establishment of the system of Advaita through pointing out the contradictions that vitiate the schools that are opposed to it, viz., those of the Dvaitins and the Vaināśikas. As against this, Prof. Bhattacharya contends that there is no detailed criticism of the Dvaitins' view in this chapter, that there is no allusion to the Vaināśikas, and that the views of the Vaināśikas are accepted and endorsed by Gauḍapāda, who cannot therefore criticise them. As regards each succeeding chapter the Professor wants us to ask these questions: does it presuppose the preceding chapter somehow or other? What do we lose if we take it as an independent work on the Advaita Vedānta? Do we find in reading it in that light anything improper, non-sensical or unintelligible without assuming its connection with the preceding chapter? Professor Bhattacharya's answer to these questions is in the negative; and he regards the four prakaraṇas as independent manuals of Advaita.[6]

Let us gather afresh Śaṅkara's statements about the nature of the work as a whole and about the purpose of each chapter. In his introduction to the first prakaraṇa, Śaṅkara describes the argument of the four-chaptered *Kārikā* thus: "For the purpose of determining (the sense of) Oṃkāra is (written) the first prakaraṇa which abounds in Scriptural passages (āgamapradhānam) and which is the means for knowing the true nature of the self. When the world of duality is resolved, the non-dual is known, as when the serpent, etc., imagined in the rope are resolved the rope which is real is cognised. In order to explain through reason the illusoriness of (the world of) duality there is the second prakaraṇa.

6. *Āgamaśāstra,* pp. xlvii-lvii.

When there occurs the contingence that non-duality too may likewise be illusory, the third prakaraṇa shows through reasoning that non-duality is not so. There are views which are *avaidika* and opposed to non-duality being absolutely real. For the purpose of refuting them on rational grounds, by showing that those views cannot be true as they are mutually contradictory, is commenced the fourth prakaraṇa".[7] At the beginning of the second prakaraṇa Śaṅkara says: "It was said, 'When (Reality) is known, there is no duality' (I, 18), and this is supported on the basis of such *śruti* passages as 'One only, without a second'. That is only Scripture (āgama-mātram). It is possible to determine even through reasoning the illusoriness of duality. For this purpose the second prakaraṇa is commenced'.[8] At the beginning of the third prakaraṇa Śaṅkara remarks, "While discussing the nature of Oṃkāra it was stated 'the self is the cessation of the world, blissful, without a second,' and 'When (Reality) is known there is no duality'. That was only as a premise. Of these (i.e. the two propositions 'the self is' and 'the world is not'), the non-existence of the world was explained in the Vaitathya-prakaraṇa by illustrations like dream, magical show, and *fata morgana,* and through reasoning on the ground of *probans* such as 'because it is seen', 'because it is with beginning and end', etc. Is non-duality to be known through Scripture alone or through reasoning also? Asking thus, the teacher replies: it is possible to know through reasoning also? How is that? To show how the Advaita-prakaraṇa is commenced."[9] Explaining the connection of the fourth prakaraṇa with the preceding ones, Śaṅkara observes, "By way of determining Oṃkāra non-duality was stated (in the first prakaraṇa) as a premise known from Scripture. The same was established (in the second prakaraṇa) on the ground that the external world of objects is illusory. Again (in the third prakaraṇa) of the non-duality which was ascertained directly from Scripture and through reasoning, it was conclusively stated. 'This is the supreme truth'. At the end (of that prakaraṇa) it was indicated that the views of the Dvaitins and the Vaināśikas which are opposed to the view of non-duality, the sense of Scripture, are wrong because of their mutual opposition and because they give rise to passions like attachment and aversion. Non-

7. Vani Vilas Memorial Edition, Vol. 5, p. 89.
8. Memorial Edition, Vol. 5, 122.
9. Ibid, Vol. 5, 144.

dualism is praised as the right view on the ground that it does not give rise to passions. Now, the Alātaśānti-prakaraṇa is commenced for showing in detail the falsity of those views which are opposed to one another, and for establishing finally through negative reasoning non-dualism".[10]

Now let us return to Prof. Bhattacharya's questions. The relation between the first and the second prakaraṇa, according to Śaṅkara, is that while the first chapter states as a premise the non-reality of the world of duality, supported by Scripture, the second chapter establishes the illusoriness of the world through reasoning. The first objection raised by Prof. Bhattacharya is that the first chapter is not devoid of arguments. He cites kārikās 16–18 to show that arguments are advanced for proving the illusoriness of the world even in the first chapter. But a comparison of the method and contents of the first chapter with those of the second will clearly reveal that while in the former Scripture is the main source of evidence, in the latter various reasons are given for the illusory nature of the world. This is all that the commentator means when he says 'āgamamātram tat.' The word 'mātra' here has the sense of 'prādhānya', for that is how Ānandagiri interprets it. Śaṅkara himself says in his general introduction at the head of the first chapter: 'prathamaṃ prakaraṇaṃ āgama-pradhānam'. To the next objection that if the relation between the first and the second chapter were as it is declared by Śaṅkara, why does the author himself not say so at the beginning of the chapter, we need only reply that it is not necessary. What we should consider is whether Śaṅkara has correctly understood the teachings in the two chapters and their connection, if there be any. Let us turn to the contents of the chapters themselves to find an answer. The āgama-prakaraṇa begins with a summary of the *Māṇḍūkya Upaniṣad.*[11] Viśva, Taijasa and Prājña are described; different theories of creation are mentioned with a view to show that they are unsatisfactory, as the world is in truth the very nature of the *Deva;* in the Turīya which is the absolute non-dual reality, there is neither cause nor effect; Prājña, the self in sleep, is conditioned by the cause of world-manisfestation, viz. nescience; Viśva and Taijasa, the self of the waking state and the self of dream res-

10. Ibid, Vol. 5, 180.

11. The view that the Upaniṣad must have been composed later than the *Kārikā* we shall examine below.

pectively, are conditioned by both cause and effect, i.e., nescience and its product; the Turīya is not to be confused with Prājña, for while Prājña is associated with dreamless sleep, in the Turīya there is neither sleep nor dream; as a corollary from this it is said that the universe does not really exist; the non-dual self (Turīya) is the sole reality; the world of duality is illusory (māyāmātra); then, following the Upaniṣad, Viśva, Taijasa and Prājña are identified with the three letters of Om, *a*, *u* and *m*, and the Turīya with the soundless culmination of Om; lastly, meditation on Praṇava is prescribed, as it leads to the supreme. From this brief outline of the contents of the Āgama-prakaraṇa it will be evident that the main subject of study is the teaching of the *Māṇḍūkya Upaniṣad*. No doubt it is declared there that the world is non-real. But that declaration is based on such words of the *śruti* as 'prapañcopaśamam' and 'advaitam'. Thus it is clear that Śaṅkara is not wrong in characterising the first prakaraṇa as 'āgama-pradhāna.' The second chapter, Vaitathya-prakaraṇa, begins with the statement that the wise declare all the objects seen in dream to be illusory; and then it is argued that the objects perceived in waking also must be illusory because of similarity with those seen in dream. Now, does not this line of reasoning presuppose the discussion of *avasthās* in the previous chapter? Is it not an elaboration through logic of what was premised on the authority of *śruti* in the Āgama-prakaraṇa? After showing in detail how there is parity between waking and dream, the author of the *Kārikā* proceeds to say that the entire world is a mistaken reading of the non-dual self. As when the rope is seen the snake-illusion is removed, so also when the self is known, the world of plurality disappears; then follows a catalogue of different views about the self; but the truth is, there is nothing other than the self; a few more illustrations are given to prove that the universe is illusory; the final truth is proclaimed as the non-dual reality which knows neither dissolution nor origination, neither bondage nor release; and lastly, how the *yati* could know the truth and after knowing how he should live in the world are declared. Here again Śaṅkara seems to be substantially correct in his statement that the purpose of the second chapter is to establish through reason the illusoriness of the world of duality.

As regards the relation between the second and the third chapter, Prof. Bhattacharya's objection, as we have already seen, is that if the object of the third chapter were what Śaṅkara regards it to be, then there should be no need for this chapter at all, as all the arguments for non-duality could be included in one. As

a preliminary observation we may point out here that the treatment of the same topic in two successive chapters is not uncommon even in modern books. But that apart, does Śaṅkara say or mean to say that the object of the second and the third chapters is the same? Is it not his view that while the Vaitathya-prakaraṇa establishes through reason the illusoriness of duality, the Advaita-prakaraṇa seeks to show the non-illusoriness of non-duality? The two are related topics, no doubt; but they are not identical. The contention of Prof. Bhattacharya is that non-duality, though mentioned in the third chapter, is not its main topic, but something else. And this will be clear, he says, if one examines the contents with some amount of care. The following is his own account of the contents of the third chapter "Here at the beginning (III, 1–2) the author tells us about 'non-origination' (*ajāti*) and having established it concludes in the end (III, 48) that it is the highest truth (*uttama satya*). In doing so he discusses the Vedānta and in that connexion the absence of difference between Jīva and Brahman. He treats also of a *samādhi* 'intense abstract concentration' called *asparśayoga* meant for the realization of the Truth".[12] We have no quarrel with this analysis. But what does it show? How is *ajāti* a topic different from *advaita?* Why is non-origination the truth? Is it not because the truth is non-duality alone? Prof. Bhattacharya admits that Gauḍapāda asserts in this chapter the absence of difference between jīva and Brahman. If this is not advaita, what else is it? And what is *asparśayoga* if it is not the path to the realisation of non-duality?

The fourth chapter, in the opinion of Śaṅkara, points out the mutual contradictions that are to be found in the systems opposed to Advaita and establishes non-duality by a process of negative reasoning. Where in this chapter is a detailed discussion, asks Prof. Bhattacharya, of the views of the Dvaitins and the Vaināśikas, assuming that they are wrong because of their mutual contradiction? And secondly, where is the allusion to Vaināśikas as opponents, whose views Gauḍapāda accepts by implication throughout the book? Before we make an attempt to answer these questions we may notice in passing the argument that the Alātaśānti-prakaraṇa must be an independent treatise as it commences with a *maṅgalācaraṇa.* Prof. Bhattacharya himself dismisses this argument as not carrying much weight. In a

12. *Āgamaśāstra,* p. lii.

Bauddha work, the *Pañjikā* of Prajñākaramati on the *Bodhicaryāvatāra* which consists of nine chapters, there is *maṅgalācaraṇa* in the first and the last chapters, and not in others. But where is *maṅgalācaraṇa* in the first prakaraṇa of the *Kārikā?* It has been answered by the commentators that OM with which the Upaniṣad begins is itself the *maṅgalācaraṇa.* Not only at the beginning of the fourth chapter but also at the end there is *maṅgalācaraṇa* in the form of obeisance. Does it not imply, asks Prof. Bhattacharya, that the prakaraṇa is an independent work and complete in itself? We do not, however, see the implication, because there is nothing unintelligible in a book ending with an obeisance. Now about the other questions. The Alātaśānti–prakaraṇa just immediately after the *maṅgalācaraṇa* refers to the disputants who uphold the reality of origination and quarrel among themselves. Then there is an elaborate and detailed dialectical criticism of the category of origination, the concept of cause. Is not the notion of cause one of the cardinal doctrines of the pluralists (dvaitinaḥ), and in criticising it in detail, is not the author of the *Kārikā* examining the view of those who are opposed to Advaita? The next question is about the reference to Vaināśikas. In his notes on kārikā, III, 3, Prof. Bhattacharya says that among the Buddhists the Vaibhāṣikas maintain satkāryavāda, and the Sautrāntikas and Yogācāras hold asatkāryavāda. The verse in question maintains that the two views regarding the causal relation are mutually contradictory, and in subsequent verses Gauḍapāda provides a critique of the causal category and rejects it finally. Is this not an implicit criticism of the Vaināśika views, at any rate of the three schools of Buddhism mentioned above?[13] There is one more question raised by Prof. Bhattacharya. A number of kārikās from the second and third chapters are repeated in the fourth; the *ajātivāda* discussed already in the third chapter is discussed again in the fourth. Why is this repetition? Is it not useless? In reply it need only be pointed out that repetition is not a defect in an *upadeśa–grantha.*

That the *Māṇḍūkya–kārikā* was considered to be an *upadeśa–grantha* will be evident from the colophons in some of the manuscripts.[14] The main object of the work is to teach students of Advaita the essentials of Non–dualism. And the teacher,

13. We shall examine the question of Bauddha influence later.
14. *Āgamaśāstra,* p. 244.

Gauḍapāda, grades his lessons in an intelligent manner. After setting forth the purport of Scripture in the first chapter, he justifies it through reasoning in the next two chapters. The *Māṇḍūkya Upaniṣad* teaches the illusoriness of the worlds of waking and dream and the absolute reality of the Self, the Turīya. The second chapter is concerned with the former and the third with the latter. Having expounded the philosophy of Advaita through Scripture and reasoning, Gauḍapāda examines in the fourth chapter the views opposed to Advaita, exhibits their contradictions and shows the excellence of his own system. Such a view of the *Kārikā,* we submit, is the most rational one to take, having regard to the nature of the work and the topics dealt with therein.

III

Contrary to the traditional Advaita view which holds the 29 verses of the first chapter to be Gauḍapāda's commentary on the *Māṇḍūkya Upaniṣad* consisting of the 12 prose passages, Prof. Bhattacharya thinks that the verses or kārikās must have been already in existence before the prose passages came to be composed. The reasons offered for his view by the Professor are these: (1) After the 6th, 7th, 11th and 12th mantras of what is called the *Māṇḍūkya Upaniṣad,* the kārikās are introduced in the words 'atraite ślokā bhavanti,' (here are these ślokas). In other Upaniṣads like the *Bṛhadāraṇyaka* and the *Chāndogya* similar expressions are employed to introduce ślokas in support of the prose passages that precede them. It follows, therefore, that the prose portions must have come into existence after the verses, and not *vice versa.*

(2) A comparison of the contents of the prose passages with those of the corresponding verses bears out this view. If the kārikās were really explanations of the prose passages, they should throw light on those portions of the latter which are difficult or obscure and should not omit the most important words of the original. But what are the actual facts? (a) The kārikās 1–5 which are supposed to explain the prose passages 3–5 omit altogether the words *'saptāṅgaḥ'* and *'ekonaviṁśatimukhaḥ'* the most difficult ones which require explanation. (b) In the prose passages 3 and 9 we have the word *vaiśvānara;* but in the corresponding kārikās the word *viśva* is used. The business of a commentator is to explain the original word and not introduce a word which is not identical or synonymous with it. (c) The terms

jāgaritasthāna, svapanasthāna, and *suṣuptasthāna* of the prose passages 3, 4 and 5 respectively are not found in the kārikās. (d) That the so-called Upaniṣad, instead of being the original, is really a commentary on the verses will be evident from the fact that taking a word or two from the kārikās it expands and explains the idea contained therein. For instance, the terms *ghanaprajña* (1), and *ānandabhuj* or (3) *ānanda* (4) are explained in prose passage 5, (e) The karikā I, 19 says that Viśva is identical with *a* the first letter of Om because each of them is the first (*ādi*) in its series *and* each is pervasive (*āpti*). The corresponding Upaniṣad clearly says that the identity is *either* because of each being the first *or* because of each being pervasive (āpter ādimattvād vā). This option seems to be a later development. (f) There is divergence as regards two words between Kārikā I, 21 and Upaniṣad 11. In the former there are the word *māna* 'measure' from *mā* 'to measure' and the word *apīti* 'disappearance,' from *api-i,* while in the latter there are *miti* 'measure' from *mi,* and *laya* 'disappearance'. (g) The kārikās (I, 10-15) make a distinction between Turīya and the other three, viz., Viśva, Taijasa and Prājña; but no such distinction is found in the Upaniṣad. (h) The Upaniṣad (1) says that Brahman or Ātman has four quarters (*catuṣpād*); but there is no such mention in the kārikās.

(3) Lastly, there is the view of Ācāryas like Madhva that the 29 verses of the Āgama-prakaraṇa form part of the Upaniṣad, and that the verses are older than the prose passages. On these grounds Prof. Bhattacharya concludes that the kārikās of the first chapter are not a commentary on the *Māṇḍūkya Upaniṣad,* that the Upaniṣad is mainly based on the kārikās, and that it must have been composed later 'with a tinge of the language used in the Brāhmaṇas'.[15]

Let us examine the points raised by Prof. Bhattacharya *seriatim.* (1) There is nothing unintelligible in the Kārikākāra introducing his explanatory verses in the words 'atraite ślokā bhavanti'. In some manuscripts these are said to be the words of the Vārttika-kāra.[16] The Vārttika-kāra here referred to is

15. *Āgamaśāstra,* pp. xxxi-xlvii.

16. See *Ānandāśrama* edition of the *Kārikā* with Ānandagiri's Ṭīkā, p. 25; atha vārttikakāroktam vākyam.

Gauḍapāda, for the *Kārikā* is also known by the name *Māṇḍūkya-vārttika*.[17]

(2) Before answering the next set of questions, it may be useful to ask ourselves as to what sort of a commentary we hold the 29 verses of the Āgama-prakaraṇa to be. Certainly, they are not meant to be a word-by-word gloss on the Upaniṣadic passages.[18] They re-arrange the concepts found in the Upaniṣad in a more logical manner with a view to show that the Turīya is the absolute non-dual reality; and this again is only a foundation for the succeeding three chapters. Those expressions in the Upaniṣad which are not materially useful are passed over, and certain implications which are not expressly stated in the Upaniṣad are explained because they are regarded as important by the author of the *Kārikā* for the development of his thesis. A case in point is the mention and criticism of the several creationistic theories. Without departing from the spirit of what is declared in the Upaniṣad, the Kārikā-kāra prepares his own *precis* of the passages and makes it the nucleus of his subsequent philosophical construction. Now we may turn to answer the points raised by Prof. Bhattacharya against regarding the Upaniṣad as the earlier text. (a) Since the object of the first five verses is to analyse the three manifestations of the self, Viśva, Taijasa and Prājña, and to show that Reality is one in the three states though the contents and types of enjoyment vary, the verses leave out expressions which are not useful for this purpose. Viśva and Taijasa being endowed with seven limbs and nineteen mouths is of no metaphysical consequence subserving the purpose Gauḍapāda has in view. It is points of contrast that are important; for the philosopher wants to show that inspite of apparent differences there is an underlying unity. Hence it is that to the differences in objects of consciousness and modes of enjoyment mentioned in the Upaniṣad, Gauḍapāda adds the differences in principal locations and types of satisfaction. The reason we have just given will also explain why the author of the *Kārikā* has nothing to comment on the first two mantras of the Upaniṣad, though at a later stage and in its proper place he refers to Oṃkāra and its *mātras*. (b) The terms

17. Rāmakṛṣṇa Paṇḍita in his commentary on the *Pañcadaśī* (II, 29) refers to the Kārikā (III, 39) as Vārttika. Whether the name *Vārttika* as applied to Gauḍapāda's work is proper or not is not germane to the present discussion.

18. See S. K. Belvalkar: *Vedānta Philosophy*, Part I, p. 193.

'Viśva' and 'Vaiśvānara', whatever be their etymological significance, have come to mean the same in Advaita usage. Probably, Gauḍapāda's intention is to show the identity of the self of the waking state with the all-consciousness which has the manifest universe for its object, the identity, in short, of the *adhyātma* and *adhidaiva* forms of the self. Hence it is that he describes 'Viśva' as all-pervading (*vibhu*). The suggestion, however, comes from the *Śruti* itself. The Upaniṣadic passage 6 describes Prājña, the self in sleep, as the Lord of all, the knower of all, the controller of all, etc. Since it is the same self that persists in and through the changing states, the Kārikā-kāra identifies the apparently individual soul that is awake with the self of the universe. (c) The terms *jāgaritatshāna, svapnasthāna* and *suṣuptasthāna,* need not be repeated in the *Kārikā,* because the verses, as we said, present only a summary of the Upaniṣadic passages for a set purpose which their author has in view. They are not, however, unnoticed, for the fifth verse refers to them together in the words 'in the three states' (triṣu dhāmasu). (d) That a prose passage is longer than the corresponding verse or verses can be no argument for its subsequent composition. In the Upaniṣad 5 the state of sleep is explained and the self of that state is described. In fact, we have an independent passage for each of the three. Viśva, Taijasa and Prājña. Gauḍapāda adopts a different method. The first four Kārikās speak of all the three, and the trio are compared in respect of their objects of consciousness, types of enjoyment, locations and kinds of satisfaction. Viewed in this light, it may be seen that Gauḍapāda has incorporated in his verses all the terms that are necessary from the Upaniṣadic passage 5. (e) The Kārikā I, 19 identifies Viśva with *a* because each is the first in its series *and* each is pervasive. The Upaniṣad calls them identical for *either* of the two reasons. From this alleged difference between the *Kārikā* and the Upaniṣad Prof. Bhattacharya concludes that the latter must have been composed later. But what is the force of 'or' (vā) in the Upaniṣadic text? Is it used in the sense of a disjunction either of ignorance or of exclusion? We do not think that the Upaniṣad means to say that 'Viśva' and *a* are to be identified either only because each is the first or only because each is pervasive. Both are equally valid reasons for identification. And it is this meaning that is expressed by the word 'and' (ca) in the kārikā, 19. (f) We have already said that the verses of the first prakaraṇa do not constitute a word-by-word gloss on the Upaniṣadic passages. And so it does not matter from which root a particular word is formed

in the *Kārikā* provided it expresses the same idea. Prof. Bhattacharya himself admits that there is no difference in meaning between *māna* and *miti,* and between *apīti* and *laya.* (g) The Kārikās 10–15 make a distinction between the Turīya and the other three, Viśva, Taijasa and Prājña. The Turīya is the changeless lord of all, one without a second; it is unconditioned eternal consciousness; in it there is neither the veiling of the true nor the projection of the untrue. Prof. Bhattacharya holds that there is nothing corresponding to this idea in the Upaniṣad. But what do the two Upaniṣadic passages, 7 and 12, which set forth the nature of the Turīya mean? Do they not declare that the Turīya is trans-phenomenal (prapañcopaśama) and thereby distinguish it from the three, Viśva, Taijasa, and Prājña? (h) There is no mention in the *Kārikā,* says Prof. Bhattacharya, of the four quarters of Brahman or Ātman declared in the Upaniṣad. This, however, is not the case. The kārikā 24 makes mention of the *pādas* (quarters); and that they are four will be evident from the description of Viśva, Taijasa, Prājña, and Turīya, in the preceding verses.

(3) As for the rival tradition which regards the prose passages and the 29 verses of the first prakaraṇa as constituting the Upaniṣad, it must be noted that it does not lend countenance to Prof. Bhattacharya's view that the prose passages came into being after the kārikās. .If the entire prakaraṇa is *śruti,* in the sense in which the orthodox schools of Vedānta accept the term, its different parts cannot be dated in sequence. It is not our task here to examine the *rationale* of the tradition which holds the kārikās of the Āgama-prakaraṇa to be part of the Upaniṣad. We are only concerned with pointing out that the Advaita tradition is an old one—at least as old as Śaṅkara—and that it is not either unplausible or unjustifiable. That the tradition is an ancient one is admitted by Prof. Bhattacharya himself. Even if the evidence of the commentator on the *Kārikā* is set aside as that of a spurious Śaṅkara, there are unmistakable references in Śaṅkara's *Sūtra-bhāṣya* and Sureśvara's *Naiṣkarmyasiddhi* from which one may gather that according to these two Advaitins, master and pupil, the verses of the Āgama-prakaraṇa are not *śruti.*[19] Śaṅkara quotes the kārikā I, 16 in his commentary on the *Vedānta-sūtra,* II, i, 9, and says that it is a statement made by the teacher who

19. *Āgamaśāstra,* p. xxxiv.

knows the tradition of the Vedānta.[20] Sureśvara quotes the kārikā I, 11, in his *Naiṣkarmyasiddhi,* IV, 41, and says that it is stated by the worshipful Gauḍas. It is no doubt true that some of the verses of the Āgama-prakaraṇa which are cited by Advaita teachers are declared as *śrutis.* But this only shows that in their view the verses were composed *after* the *Māṇḍūkya-śruti.* The term *Upaniṣad* is rather loosely employed by the old teachers. For instance, the *Bhagavad-gītā* is called 'Upaniṣad'. In some of the manuscripts of the *Māṇḍūkya-kārikā* all the four prakaraṇas are called 'Upaniṣads'. Kamalaśīla, a disciple of Śāntirakṣita (705–763 A.D.) quotes in his *Pañjikā* some verses from the Vaitathya and Advaita-prakaraṇas and speaks of them as belonging to *Upaniṣatśāstra*[21] And so, the verses of the first prakaraṇa, when they are characterised as *śruti* or Upaniṣad, must be considered so in the secondary and not the primary sense.

IV

There is one more problem of the *Māṇḍūkya-kārikā* which we shall discuss here in brief. It is believed that Gauḍapāda, if he himself was not a Bauddha, ought to have been greatly influenced by Bauddha views which he accepted and incorporated in his *Kārikā.* Especially the idealist schools of Buddhism, Vijñānavāda and Mādhyamika, it is thought, must have appealed to him as sponsoring views very much like his own, and so without any hesitation or scruple he made use of the arguments advanced by these Bauddha schools to prove his thesis of the non-reality of the world and its absolute non-origination. The contents of the fourth chapter are indistinguishable from those of any Mādhyamika work. The terms and phrases employed there are those of Nāgārjuna. Even the title of the chapter, '*Alātaśānti*' is borrowed from Bauddha terminology. Though the first three chapters cite here and there the authority of Scripture, no Upaniṣadic passage is quoted or referred to by Gauḍapāda in the last prakaraṇa.[22] Probably the great teacher was so much struck with the close parallelism between his Vedānta view and the views of the Bauddhas that after finishing the third chapter he wrote an independent work calling it 'Alātaśānti', advocating therein the Bauddha views and thereby preaching non-hostility to them.

20. atroktam vedānta-sampradāya-vidbhir ācāraiḥ.
21. See *Āgamaśāstra,* p. xxxviii n.
22. Ibid, p. lxxxxiii.

The question of Bauddha influence is a vexed one, and we do not propose to enter into the details here. Certain general considerations will suffice to show that Gauḍapāda's main object in the *Kārikā* is to expound the philosophy of the Upaniṣads. It is true that in accomplishing this object he presses into service some of the arguments of the Bauddha idealists and even their terminology. But that does not prove his Bauddha leanings or agreement with the conclusions of Buddhism. In the first place, it must be remembered that those teachers of Buddhism who came after Gauḍapāda and who refer to his *Kārikā*, do not regard him as a Bauddha or as having been influenced by Buddhism. Śānti-rakṣita quotes in his *Madhyamakālaṅkāra-kārikā* verses from Gauḍapāda's work, while discussing the views of the Aupaniṣadas. Kamalaśīla refers to the *Kārikā* in his *Pañjikā* as an *Upaniṣat śāstra*.[23] That the metaphysical position of the *Mādhyamikas* is nihilism in the primary sense is urged not only by Advaitins but also by Jaina writers.[24] The Mādhyamikas themselves do not refute the charge of nihilism brought against their view, though they carefully distinguish their philosophical nihilism from 'common or vulgar nihilism'.[25] No one denies a certain measure of similarity between Advaita and the idealistic schools of Buddhism, especially in the matter of their negative logic. Śaṅkara the commentator himself says that the kārikās IV, 25–27 employ the arguments of the Vijñānavādins for the purpose of refuting the views of those who maintain the reality of external objects.[26] The procedure is exactly similar to that adopted by the Absolute Idealists of the West in their criticism of Realistic doctrines. But it does not follow that either Advaita or Absolutism is identical with Subjectivism. Gauḍapāda is faithful throughout to the Upaniṣads. Even in the Alātaśānti-prakaraṇa where he employs Bauddha terminology to a great extent, he does not cut himself away from the Upaniṣadic moorings. It is not true to say that there is no reference to Upaniṣadic passages in the fourth chapter. As Dr. Belvalkar has pointed out, familiar Upaniṣadic expressions are employed in IV, 78, 80, 85, and 92. That these expressions are used by Bauddha writers also can only show that they were borrowed by them from the Upaniṣads. And it is

23. Ibid, p. lxxvi.
24. See Prof. M. Hiriyanna's *Outlines of Indian Philosophy*, p. 8.
25. Ibid, p. 222.
26. Mem. Edn. Vol. 5, p. 196.

significant that Gauḍapāda should have used such expressions as 'brāhmaṇyam padam', and 'amṛtatva' in the concluding portion of his work, and that he should have stated at the end 'naitad buddhena bhāṣitam' (This was not declared by the Buddha).[27] Thus it will be clear that Gauḍapāda's *Kārikā* is essentially a work on Vedānta inspired by the Upaniṣads. The exigencies of his time must have made him employ Bauddha terminology, even as the Hindu monks who preach Vedānta in the countries of the west to-day feel the necessity for clothing their thoughts in Christian expressions.

It would appear that Prof. Bhattacharya agrees with this view to a large extent when he says. "It goes without saying that our teacher, Gauḍapāda, is a Vedāntist and he mainly deals with the Vedānta in the present work declaring its conclusion"; "And among the Vedāntists Gauḍapāda is an Advaitist, the highest truth to him being Advaita 'non-duality' ".[28] The Professor even grants in one place that "Gauḍapāda, though much influenced by the Buddhist thoughts, maintains his position as a Vedāntist".[29] But we do not find our way to agree with him when he says that there are two schools of Vijñānavādins, (1) Vedāntists headed by Gauḍapāda and (2) Buddhists with Maitreya at the head.[30] He himself sets forth the distinction between the two schools in clear terms. The real difference between them, he says, is with regard to the intervention of the Ātman with whom *māyā* is connected in the first, and his denial in the second where the *vāsanā* is with the *citta*.[31] Even where Gauḍapāda applies the term *citta* to signify reality, he uses it as a synonym for *Brahman*. While to the Vijñānavādin the *Ālayavijñāna* is momentary (kṣaṇika) and continuous like a current (dhruva), to the Advaitin Brahman-Ātman is eternal (nitya). Therefore it helps in no way philosophically to call Advaita a school of Vijñāna-vāda. And tradition is not wrong in regarding Gauḍapāda as a stalwart Vedāntin, the philosophical progenitor of Śaṅkara.

27. Prof. Bhattacharya gives a novel interpretation of this sentence. See *Āgamaśāstra*, p. 212.
28. Ibid, pp. cxxvii & cxxviii.
29. Ibid, p. cxxxii.
30. Ibid, p. cxxxii.
31. Ibid, p. cxxxiii.

V

In conclusion we repeat that the *Māṇḍūkya-kārikā* is a single work of Gauḍapāda setting forth the quintessence of Vedānta, the philosophy of the Upaniṣads, and that its first chapter, the Āgama-prakaraṇa, is a verse-summary of the *Māṇḍūkya Upaniṣad* which is made the nucleus for the rational exposition of the system of Advaita in the subsequent three chapters. We hold no brief for tradition. Yet we cannot help pointing out that the Advaita tradition as regards Gauḍapāda and his *Kārikā* is essentially sound, neither taxing our credulity nor involving us in contradictions.

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FREEDOM OF INTERSTATE COMMERCE IN FEDERAL CONSTITUTIONS

BY

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The title of this article requires an apology. The use of the word 'state' in connection with the Indian constitution is invariably associated with the federated native states and hence by way of explanation it may be added that the article has reference to the freedom of interprovincial trade (trade between governors' provinces) so far as it is treated in the Indian constitution act of 1935.

One of the modes by which the members of a federal union strive to derive the maximum advantage from the act of federation is to create a customs barrier against foreign goods and to permit absolute freedom of trade among the units; by this means indigenous trade gets two advantages, one negative and another positive; the former consists in the protection afforded against foreign competition by tariffs, the latter arises out of the free movement of commodities as among the units *interse* with a consequent augmentation of the country's wealth. Thus freedom of internal trade is a cardinal item in many federal constitutions and we shall note how the American, Canadian, Australian and Indian constitutions have dealt with this matter.

In the United States by Article I section 8 (3) of the constitution, the power of the Congress is to 'regulate commerce with foreign nations and among the states and with the Indian tribes.' By a process of judicial interpretation, the rule has become well-established that since the subject is one of national concern requiring national treatment the Congressional power is exclusive. Thus the states in America have no power to pass legislation affecting interstate commerce at all. Most of the decisions in America where state acts have been impugned have turned on the question, is the state act one dealing with police powers of the state and hence within its competence, or does it purport to indirectly regulate interstate commerce and encroach upon the

exclusive Congressional sphere? It may be mentioned that there is no express provision in the U. S. constitution prohibiting legislation which restricts or hinders interstate commerce. The only question is whether a state under guise of its police powers is invading the area of interstate commerce reserved to Congress. The general principle to be deduced from the American decisions is that when imported goods have become the general mass of property of the importing state, they cease to have an interstate character and become subject to the police powers of the importing state. While remaining the property of the importer in his warehouse in the original form or package in which they were imported, they do not become part of the general mass of property of the importing state. Thus in Mutual Film Corporation v. Industrial Commission of Ohio 215 F. 138 the question was whether the Ohio statute which prohibited the public exhibition of motion pictures without the approval of the Board of Censors related to interstate commerce so as to make its enactment by the state invalid. The district court of the southern district of Ohio (consisting of one circuit judge and two district judges) pronounced the act valid and the Supreme Court (236 U.S. 230) upheld the district court's judgment in these words: 'It would be straining the doctrine of original packages to say that the films retain that form and composition even when unrolling and exhibiting to audiences or being ready for renting for the purpose of exhibition within the state could not be disclosed to state officers.... There must be some time when the films are subject to the law of the state and necessarily when they are in the hands of the exchanges ready to be rented to exhibitors, or have passed to the latter, they are in consumption and mingled as much as from their nature they can be, with other property of the state.' In Austin v. Tennesse, 179 U.S. 343, the court held that the doctrine of original packages applies only to large packages and so manufacturers cannot evade state laws by sending goods in minute packages for sale to retail customers and dealers. In Welton v. Missouri (1876) 91 U.S. 275 it was held that a statute of Missouri forbidding the sale by travelling dealers of certain articles not the growth, produce, or manufacture of that state without a licence was void, as being in conflict with the power of Congress to regulate interstate commerce. The court held that a tax upon the business of selling goods was in effect a tax upon the goods themselves and that the commercial power continues until the commodity has ceased to be the subject of discriminating legis-

lation by reason of its foreign origin. In Robbins v. Shelby County (1887) 120 U.S. 489 a similar state act was pronounced void in so far as it purported to apply to interstate sales though the act said nothing as to the origin of the goods.

In Canada, by the British North America Act section 121: 'All articles of the growth, produce, or manufacture, of any one of the provinces shall be admitted free into each of the other provinces.'. This section has not been the subject of much judicial interpretation. Rather, there the problem has been, can the dominion under guise of legislating in order to regulate trade and commerce (which is a federal subject) trench upon property and civil rights which belong exclusively to the provinces? In Fort Frances Power & Pulp Co. v. Manitoba Free Press (1923) A.C. 695 the Privy Council held that conditions arising out of the war were sufficient to authorise dominion interference with proprietary rights and civil law regarding the cost of newsprint. But in the Board of Commerce Act 1919, In re, (1922) 1. A.C. 191 a determined effort of the dominion to set up a control of prices in general and of stocks of foodstuffs to protect the public from imposition was defeated as incompetent. The general effect of the Canadian decisions is that the dominion cannot invade the provincial list except in times of grave national peril like war, famine or pestilence. In other cases, the invasion of the provincial field cannot be justified by invoking either the commerce clause, or the general omnibus clause relating to the peace, order, and good government of Canada. In Attorney General for Ontario v. Attorney General for Canada (1937) A.C. 405, the Privy Council overruling the Supreme Court held that the Dominion Trade and Industry Commission Act, 1935 which created a national trademark 'Canada Standard,' did not amount to the creation of a new form of private property which invaded the provincial sphere. Incidentally the Privy Council disposed definitely of any doubt as to the inclusion of the power to deal with trademarks in the power as to trade and commerce even when it includes protection of trademarks owned by foreign associations and held by them in gross.

In Australia, section 92 of the constitution provides that 'trade, commerce, and intercourse among the states whether by means of internal carriage or ocean navigation shall be absolutely free.' This section has occasioned more controversy and been the subject of more diversity of opinion in its interpretation than any other part of

the constitution the industrial power included, and is itself a striking testimony of the uncertainty which attaches to the use of popular phraseology in statutory enactments. The Australian caselaw on the subject which is luxuriant may be conveniently considered under 3 sub-headings: marketing legislation, prohibition of entry of persons etc., and legislation regarding transport.

Marketing Legislation:—The earliest case is that of New South Wales v. The Commonwealth (1915) 20 C.L.R. 54 (known as the Wheat case). The N.S.W. Wheat Acquisition Act 1914 provided that (by section 3) the Governor might by notification in the gazette declare that any wheat referred to was acquired by his majesty, and that upon such publication, such wheat should become the property of the crown, the rights of the owners being converted into a claim for compensation. It was argued that as the deprivation of ownership prevented interstate trade, section 92 was infringed. Isaacs J. rejected this argument in these words 'Trade and commerce consist in acts not things; true, the things as well as human actors were indispensable but they did not form part of the trade and commerce itself and were not withdrawn from the state control in other relations merely because they happened to be engaged in the act of interstate trade'. In the next case of Foggitt Jones Co. Ltd. v. New South Wales (1916) 21 C. L. R. 357 there was a similar New South Wales Act to be considered but it differed from the previous one in that it did not expropriate the property but ordered that it should be kept at the disposal of his majesty's government in aid of the supplies for his majesty's armies in the war. This act was pronounced invalid because the property not having been expropriated, the right of disposition remained in the owner and the right of using the property for interstate commerce (which was ancillary to the right of disposition) protected by section 92 was infringed. Foggitt Jones' case was overruled in Duncan v. State of Queensland (1916) 22 C.L.R. 556 where a state act in terms similar to those of Foggitt Jones' case was upheld. The reason was that the state act affected interstate commerce only indirectly. 'Capacity of disposition does not connote ownership nor does ownership of itself necessarily connote capacity of disposition. The goods have been placed by the act in *custodia legis* and the possessor of such goods is in a position analogous to that of a receiver subject to the control of a state court.' In W & A McArthur v. Queensland (1920) 28 C.L.R. 530 the Queensland Profiteering Act 1920 made it unlawful for any trader whether as prin-

cipal or agent to sell any commodity at a price higher than a price declared in the gazette. A New South Wales company had its traveller in Queensland selling commodities at a price higher than that so declared. By section 3 of the act 'trader' included the agent of any person carrying on the business of selling commodities. The act was attacked by the company as offending section 92. It was argued on behalf of the state that the fixing of a maximum price for goods by legislation related to the law of contract and not of interstate commerce. The court rejected this argument observing: 'Although the power to legislate with reference to contracts remained with the states, a law which prohibited freedom of contract with regard to the price of a given commodity was not a branch of the law of civil contract but a branch of the law of trade. The law of contract did not concern itself with any special subject of contract.' The act was held invalid. In James v. South Australia (1927) 40 C.L.R. 1 the state legislation created a Dried Fruits Board and empowered it to fix the maximum prices to be charged for the sale of dried fruits and to determine where, and in what quantities, dried fruits produced in any particular year should be marketed (section 20). Section 28 provided that the minister might acquire or purchase for the purposes of the act any dried fruit grown and dried in South Australia. The object of the statute was to force the surplus dried fruit off the Australian market. Firstly by fixing a limited amount for Australian consumption (a necessary element in the conception of a surplus) and secondly by preventing the sale of the balance of the output in Australia. The majority of the High Court held that section 20 of the Dried Fruits Act infringed section 92 of the constitution. The majority also held that since section 28 of the act was made subject to section 92 of the constitution it was valid. Isaacs A.C.J. and Powers J however distinguished the Wheat Case and held that the present section 28 hindered interstate commerce, in these words: 'Here as shown, the purpose for which the goods were seized was a direct interference with interstate trade, and interstate contracts not only influenced the governmental action but formed its criterion. The government....has made it perfectly plain..that it was expropriating the plaintiff's property to enforce section 20 of the act.. This case is therefore the antithesis of the wheat case.' In James v. Cowan (1929) 43 C.L.R. 386 again Starke J had to consider the validity of section 28 of the Dried Fruits Act and he followed the view of the majority of the High Court in James v. South Australia (1927) 40 C.L.R. 1 and pronounced section 28 valid on the authority

of the Wheat case. 'I see no distinction in principle between an acquisition to maintain the Empire in time of war or to feed the people of a state and an acquisition to maintain the industries of a state.' The full court in (1930) 43 C.L.R. 386 upheld Starke J's view. Isaacs J who dissented (and whose convincing reasons were approved by the Privy Council which on appeal reversed the decision of the High Court) said: 'Here by the assumption we have a statute which is the antithesis of the Wheat Acquisition Act. It makes the repression of interstate trade the *causa causans* of the expropriation which is only the means selected to carry out effectively the attempted control of interstate trade.' The case went up on appeal to the Privy Council (1932) A.C. 542 and their lordships affirmed James v. South Australia (1927) 40 C.L.R. 1 as regards section 20. With regard to the Wheat Case the Privy Council said: 'If the real object of arming the minister with power of acquisition is to enable him to place restrictions on interstate commerce as opposed to a real object of taking preventive measures against famine or disease and the like the legislation is as invalid as if the legislature itself had imposed the commercial restrictions.. It may be conceded that even with powers granted in this form (i.e. subject to section 92) if the minister exercised them for a primary object which was not directed to trade and commerce but to such matters as defence against the enemy, prevention of famine, disease, and the like he would not be open to attack because incidentally interstate trade was affected.' The Privy Council have introduced inquiries as to the objects of acts as relevant data on which to base an opinion as to their validity. This savours too much of the doctrine of *mens rea* which more appropriately belongs to the domain of criminal law. And, with respect, it is submitted that it is doubtful whether this is a welcome innovation. A more easy method of overreaching the Wheat Case would be to hold that it did not concern itself with trade and commerce, not to say interstate commerce at all, whereas in James v. South Australia interstate commerce was woven into the texture of the act and was part and parcel of it. Professor Keith remarks on the Privy Council decision as follows: 'The seriousness of the judgment is unquestionable for it is plain that the method of controlling the industry so as to secure a fair return to growers throughout the state in lieu of allowing unregulated private profits is in the public interest.' The Privy Council decision was followed in Peanut Board v. Rockhampton Harbour Board (1932-33) 48 C.L.R. 266 where an act which provided for the marketing and compulsory acquisition

of peanuts by a marketing board was held invalid. It is doubtful whether this case is good law for here the act had no reference to interstate trade at all as in James v. Cowan. In James' case it was expressly stated in the act itself (section 20) that the object of the statute was to force dried fruits' surplus off the Australian market and hence the act concerned itself with interstate commerce. But in the Peanut Case though compulsory acquisition was provided for there was no reference at any rate in the act, to the prevention of the sale of a portion of the output of peanuts in Australia. The Peanut Case would appear to fall under the principle of the Wheat Case rather than that of the principle in James v. Cowan. In Milk Board v. Metropolitan Cream Property Ltd. 13 A.L.J. 209 a majority of the High Court held that a compulsory system of marketing of milk by which all the milk supplies in certain districts vested in the milk board of the state did not hinder interstate commerce. Andrews v. Howell 15 A.L.J. 127 was exactly like the Wheat Case. Here also the act was an emergency measure of war (rules framed under section 5 (1) of the National Security Act 1939-40) with this difference that here the acquisition by the Crown was of pears and apples instead of wheat. Following the Wheat Case a majority of the High Court (Rich A.C.J. Dixon and McTiernan JJ) held that the act was valid. Starke J said: 'However wide the defence power might be, it did not enable the Commonwealth to seize control of marketing of all commodities of all or any who were in distress because of war and pay them remunerative prices for their commodities obtained from their disposal, aided by grants from parliament.' It is somewhat curious that Starke J who in James v. Cowan even upheld an acquisition to maintain the industries of the state on the analogy of the Wheat Case should now have expressed a different opinion. Perhaps the judge was thinking of the Privy Council ruling in James v. Cowan but the Privy Council case does not affect the present problem because here there is no reference to interstate commerce in the act at all and hence the case is on all fours with the Wheat Case. The fallacy of the reasoning in the Privy Council case as we have pointed out above, lies in inquiring into the object of the act (whether its aim is to affect interstate commerce even though indirectly) when the act does not concern itself with the question of interstate commerce or even commerce generally at all. When the act contains no clue to its object, it is futile to spell out an object from the consideration of extraneous circumstances, and where the act refers to interstate commerce such enquiry is superfluous because section 92 will clearly cover such an act.

Entry of Persons etc.:—In America the theory is that deleterious goods are outside the commerce power of Congress in regard to which the states can legislate. This doctrine is not accepted in Australia as an exception to the sweeping prohibition contained in section 92 against the hindering of interstate commerce by the prevention of entry of goods even though of a deleterious character. In R v. Smithers (1912) 16 C.L.R. 99 an act which prohibited convicts from another state entering New South Wales under penalties was held bad. In Exparte Nelson (No. 1) (1928) 42 C.L.R. 209 the Stock Act of New South Wales which prohibited the importation of fodder etc., which was infected, into the state was held valid. 'In truth the object and scope of the provisions are to protect the large flocks and herds of New South Wales against contagious and infectious diseases....looked at in their true light they are aids to and not restrictions upon the freedom of interstate commerce.' Isaacs and Higgins JJ dissented from the majority view in this case. In Tasmania v. Victoria (1934-5) 52 C.L.R. 157 a Victorian act which prohibited the importation of trees etc., which were likely to introduce any disease was held invalid because it interfered with interstate commerce. Three of the judges distinguished Nelson's case while Dixon J dissented from Nelson's case.

Transport Cases:—The question of the operation of state laws requiring the licensing of vehicles upon persons engaged in interstate trade has been raised in a number of recent cases in all of which the state acts have been by a majority of the court held to apply, notwithstanding section 92. The real object of such legislation is to facilitate interstate trade and provide and protect state highways. See Willard v. Rawson (1932-33) 48 C.L.R. 316, R v. Vizzard ex parte Hill (1933) 50 C.L.R. 30, Gilpin v. Commissioner of Road Transport (1934-35) 52 C.L.R. 189 and Bessell v. Dayman (1934-35) 52 C.L.R. 215. Dixon J dissented from the above trend of decisions holding that 'transport legislation is in conflict with section 92 because its application is the consequence of the commercial character of the transactions to which it applies and their character of involving intercourse between two places'. In James v. Commonwealth (1935) 52 C.L.R. 570 the High Court of Australia following McArthur's case (1920) 28 C.L.R. 530 has held that section 92 does not bind the commonwealth. Mr. Wynes has brilliantly controverted this position (Wynes 'Legislative and Executive Powers in Australia' pp. 303-4) and has adduced 12 arguments to support his view. The question of section 92 applying to the common-

wealth was left open by the Privy Council in James v. Cowan (1932) A.C. 560 but in James v. Commonwealth (1936) A.C. 578 the Privy Council overruled McArthur's case and held that section 92 binds the Commonwealth as well as the states.

The Government of India Act 1935, section 297 says: 'No provincial legislature or government shall: (1) (a) by virtue of any entry in the provincial legislative list relating to trade and commerce within the province or the entry in that list relating to the production, supply, and distribution of commodities, have power to make any law or take any executive action prohibiting or restricting the entry into or export from the province, of goods of any class or description; (b) by virtue of anything in this act have power to impose any tax, cess, or toll, or due, which as between goods manufactured or produced in the province and similar goods not so manufactured or produced discriminates in favour of the former, or which in the case of goods manufactured or produced outside the province, discriminates between goods manufactured or produced in one locality and similar goods manufactured or produced in another locality. (2) Any law passed in contravention of this section shall to the extent of the contravention be invalid. One or two points in connection with the section may be noticed. Firstly it does not apply to the federation unlike Australia (where as we have seen the Privy Council has held in James v. Commonwealth (1936) A.C. 578 that section 92 binds the commonwealth). Secondly, provincial legislation cannot hinder interstate trade by virtue of the entry relating to production, supply etc., of goods, and that relating to trade and commerce. That is, such legislation if it is by virtue of some other entry in the provincial or concurrent list is valid notwithstanding section 297. The recent case of Emperor v. Munna Lal A.I.R. (1942) All. 156 illustrates the second point. In that case the United Provinces Sugar Factories Control Act 1 of 1938 contained the following among other provisions: to each sugar factory was reserved an area where sugarcane was grown and in which the cultivator must sell his sugarcane to the factory and the factory must purchase it at a price not below a minimum fixed by the government, and the factory under the terms of its license must join a central organisation called a sugar syndicate in which organisation by its rules and regulations sugar of the members is pooled and is sold at a price reserved by the syndicate. It was contended that these provisions prevented sugarcane growers and sugar manufacturers from exporting cane and sugar respectively out of the province and hence the act infringed section

297. Rejecting this contention Dar J said: 'In my opinion the law which is open to objection under section 297 (1) Constitution Act is a law made by the provincial legislature substantially by virtue of the entry relating to trade and commerce or by virtue of the entry relating to production, supply, and distribution of commodities. And if a law is made substantially by virtue of the entry relating to agriculture, or the entry relating to the development of industry, as is the case before me, it is not open to objection under the section. Further the law contemplated by this section is a law which prohibits or restricts entry or export from the province of goods directly, and a law which does not deal directly and in substance with prohibition or restriction of export or import of goods but which deals with other needs of the province and provides for them, though incidentally the effect of the provision is that in some measure export or import is restricted, such a law is not within the meaning of this section. It follows from this that the prohibition or restriction contemplated by the section is a prohibition on the act of export or import and so long as the goods remain the property of the province and are stock of the province and before they have become the subject of interprovince or foreign trade, the province has every right to expropriate goods or put any restriction upon them which it considers necessary for the needs of the province. Now the Sugar Factories Act does not expressly or directly prohibit or restrict export or import of sugar or sugarcane from or into the province. It is not a law on the subject of export but it is a law on the subject of agriculture, industries and factories. And in so far as it directs the sugarcane in a reserved area to be sold by some sort of statutory compulsion at a price not below a minimum it has adopted a necessary measure in the interest of and in order to preserve and develop sugarcane cultivation at a stage when the sugarcane was not and was not likely to be in future, with the doubtful exception in some border districts, subject of interprovince trade. And in so far as the act regulates the quantity of sugar and its price it also takes a necessary measure in the interest of the sugar industry at a stage before sugar had become the subject matter of interprovince trade. And any remote or indirect interference which may result to export or import by these measures is not open to objection under section 297 (1) constitution act.' See also Bhola Prasad v. Emperor A.I.R. 1942 F.C. 17. It would be proper to revert to the wholesome distinction drawn in the Wheat Case between acts which constitute commerce and things which do not. Commerce consists in acts, not things and

if a law without restricting the act of exportation of the goods imposes some other burden on the goods themselves (though such burden may indirectly affect the exportation of the goods) it is outside section 297. If the act by its premable or otherwise refers to the fact that sugarcane is sold at unremunerative prices and that therefore it is desirable to enforce, a system of compulsory purchase to prevent their being sold outside the province at low rates, the case would be different for in this set of facts the scheme of the act itself refers to exportation outside the province and prohibits it and hence section 297 would operate. Suppose due to famine the stock of foodgrains in the province is insufficient and the provincial government prohibits the export of foodgrains outside the province. This would be justified notwithstanding section 297 by entry No. 32 provincial list—relief of the poor. The prohibition of the entry of diseased or infected cattle, trees, plants, etc., into the province would be justified under entry No. 14 list II—public health, and entry No. 20 list II—prevention of plant and animal diseases. The prohibition of the entry into the province of criminals or lunatics is a more difficult matter under the Indian constitution act. First of all are human beings goods so as to attract the prohibitions contained in section 297? In Attorney General v. Corke (1933) Ch. 89 Bennett J held that caravandwellers were 'things' so as to come within the Rylands v. Fletcher rule which relates to the collecting and keeping of anything likely to do mischief if it escapes. Sir William Holdsworth has criticised this decision pungently in 49 L.Q.R. 158. Writing on the guise under which Rylands v. Fletcher appears in Att. Gen. v. Corke the learned Vinerian Professor opines that we have to exclaim like Quince when Bottom appeared with the asse's head 'Thou art translated indeed'! The prohibition of the entry of criminals would be invalid because migration into a governor's province is item 50 of list I and the matter may not come within item 1 list II public order and hence section 297 would operate. The prevention of the entry of criminal tribes into a province would be different for item 23 list III refers to criminal tribes and such provincial legislation would be valid subject of course to federal legislation. As regards lunatics entry 18 list III refers to lunacy and hence provincial legislation prohibiting the entry into the province of lunatics would be valid subject to federal legislation. *Quare*: Because entry 18 list III is subject to entry 50 list I by section 100, is the provincial legislature incompetent to legislate regarding the migration of lunatics? Another difficult question is how would Welton v. Missouri be decided if it arose in India?

Suppose a provincial government imposes a licence fee on all hawkers who sell goods not manufactured in the province. Perhaps such an impost may be justified either by entry 29 list II development of industries, or entry 27 list II markets and fairs, if the fee relates to hawkers plying their trade in markets and fairs. But even otherwise such a measure may be justified on the ground that it does not prohibit or restrict the entry of goods but only burdens them after they have become part of the general stock of the province and after they have ceased to be within the ambit of interprovincial transit. Such a fee would not also offend section 297 (1) (b) for the tax is not on the goods but on the hawkers who ply a trade with the goods; it is a tax on a profession.

Suppose a provincial government directs that no films produced outside the province shall be exhibited within the province unless the exhibitors pay a licence fee in respect of them. This may be justified by entry 35 list II cinemas which also includes exhibition of films and entry 33 list III sanctioning of cinematograph films for exhibition. It is doubtful whether the original package doctrine can be strained to the extent of holding that the films even in the hands of the exhibitors retain that character and are not assimilated to the general stock of the province so as to make section 297 (1) (a) applicable. Section 297 (1) (b) would also be inapplicable for the licence fee is a tax on the exhibition of the films and not on the films themselves. Pricefixing legislation like that in McArthur v. Queensland may be upheld here under entry 29 list II development of industries. An imposition of a licence fee by a provincial government on motor vehicles which are engaged in interprovincial transport of passengers and goods or the regulation of such transport by the provincial government by other means, does not present a serious problem in India because the terms of S. 297 (1) (a) are narrower than the corresponding provisions of S. 92 of the Australian constitution. S. 297 (1) (a) refers only to the restriction or prohibition of the entry of goods and transport cases such as those above may not come within it. In Australia on the other hand, because the terms of S. 92 are wide and include 'intercourse among the states' the argument was put forward that imposing a licence fee on vehicles engaged in interstate transport offended S. 92, though as we have seen, the court rejected this argument and held that such regulation of interstate transport helped rather than hindered interstate commerce —See R. v Vizzard ex parte Hill (1933) 50 C.L.R. 30, Gilpin v. Commissioner of Road Transport (1934-35) 52 C.L.R. 189 etc. In

India even if we assume that such transport cases come within S. 297 (1) (a) (because the regulation of transport by imposing a licence fee amounts to restricting the entry of goods into the province) such imposition of licence fees, is not bad and may be justified by virtue of entry no. 18 list II which relates to 'communications that is to say roads, bridges, ferries etc.'

A few words may be said on section 297 (1) (b). In In re C.P. Sales of Motor Spirits Taxation Act, A.I.R. (1939) 1 (F.C.) a tax was imposed by the Central Provinces Act on retail sales of motor spirits. A small quantity of such spirit was produced in Attock and the rest was imported from abroad. Assuming that such a tax was an excise (the federal court held it was not) and hence not within the provincial legislature's competence, the tax on the Attock spirit would be invalid. Because of this it was said that the tax was bad even as against the foreign spirit for section 297 (1) (b) prohibits discriminatory taxation between goods produced outside the province in one locality and those produced in another locality. To this the reply was that before section 297 (1) (b) can apply there should be capacity to discriminate, intention to discriminate and the localities must both be in India. There is no capacity to discriminate since the tax as regards the Attock petrol is outside the provincial legislature's powers (assuming it is an excise). There is not intention to discriminate though the legislation might in effect result in discrimination. Moreover the section prohibits discrimination between goods manufactured in localities in India and has no reference to goods manufactured outside India which can be discriminated against and which are not produced in the locality to which section 297 refers which is a locality in India. Gwyer C. J. left this question open. Sulaiman J thought that intention was not a necessary ingredient of section 297 (1) (b); it would be quite sufficient if the provision results in discrimination. He also thought that the word 'locality' referred to some part of India and might not refer to countries outside India. Jayakar J though he was impressed by some of the arguments in regard to this particular point left this question open. Suppose in province A there is a depression in the groundnut industry and the government to assist it formulates a scheme by which a tax on first sales is imposed on groundnut sold in the province. This tax is to be passed on by the producers to the consumers; out of the proceeds of the tax a certain portion is to be distributed among the groundnut producers according to the quantity produced by them. Suppose groundnut is also imported into province A from provinces

B, C, D, and E and from E only in small quantities. E will get only a small portion of the proceeds of the tax thus distributed and will not gain much advantage. So to help E suppose government A agrees to give groundnut producers in E certain sums by way of compensation because they are not able to share in the distribution of tax proceeds on even terms. Would that offend section 297 (1) (b)? Perhaps not, for under somewhat similar circumstances the Privy Council in Moran Proprietary Ltd. v Deputy Commissioner of Taxation N.S.W. 14 A.L.J. 169 has held that it does not amount to discrimination between states in the matter of taxation prohibited by section 51 (ii) of the Australian constitution act. In conclusion it may be pointed out that section 297 affords scope for drawing the finest threads of argumentative legal subtlety and that it is bound to play a prominent part in the economic development and rehabilitation of the country on a secure basis. The student and the lawyer alike can ponder deeply and long on its fascinating phraseology and elegant draftsmanship.

IRRIGATION IN INDIA

(Continued from Volume XV No. 1)

By

George Kuriyan

Sources of irrigation.—Water is obtained from different sources which are generally classified into:—(i) canals, (ii) wells, (iii) tanks, (iv) karez and (v) other sources.

Canals.—Under canals are included all works of any considerable size for directing the water of streams, or rivers and carrying them on to the land.[28] They are of the perennial, or the inundation type, according as they are designed to draw their supplies from the river at all seasons of the year, or only when it is in flood.[29]

Inundation canals represent the survival of the earliest forms of irrigation to carry the flood water of the river through channels constructed at right angles to the course of the river. Such canals are simple cuts, usually with beds above the low water level of the river from which they draw; they gradually fill with water as the river rises in summer flood and empty again as it falls. The limit of irrigation under an inundation canal is restricted to the lower land and such canals reach their maximum development where the rivers of the Punjab begin to converge to form the lower Indus and the *khaddar* widens at the expense of the *bhangar*. In the case of these canals, much depends on the floods rising to the proper level at the proper time. If the river begins to shrink prematurely, the land is not sufficiently saturated and the crop may fail. Inundation canals thus give a precarious system of irrigation; if the floods of the rivers from which the canals are drawn are regular and the duration of the floods sufficient, the cultivation is

28. Indian Agricultural Commission Report. 1927. Page 327.

29. The distinction between canals and channels is nowhere clearly defined and the classification adopted varies not only from province to province but also from district to district.

secure, provided, the canals have been cleared of the silt deposits of the previous year. But when the floods are only low, or only remain for a short time at their full height, it is impossible to pass the necessary volume of water on to the fields.

Perennial canals.—The general character of the construction of all the perennial canal systems is very much the same. A movable weir is constructed across the river just below the intake of the canal; the intake itself is protected with sluice gates; and the union of the weir and intake into a single structure constitutes the head works of the canal. The canal flows away from the river at an angle for a considerable distance on the easiest possible grade, until at length it has left the river valley and is flowing on high ground. When it has thus gained command of a territory and not before, it throws off branches, which in turn throw off the distributaries from which the village watercourses are fed. Throughout this distributive system, regulative sluices and escapes are constructed to control and direct the flow of water as required. In thus irrigating uplands, the perennial canal further differs from the inundation canal, which usually confines its irrigation to low valley lands near the point of intake. The perennial canals may broadly be divided into two classes:—(1) canals which lie in the deltas of the rivers, as those in Madras and a few in Bengal and (2) canals which are drawn off from the upper portions of the rivers before they assume a deltaic character, as those in the United Provinces and the Punjab.

The delta of a river offers great advantages for irrigation, the soil is usually rich alluvium; the slope of the country from the head of the delta to the sea is both uniform and gentle. The distributaries of the river offer convenient means when graded channels are open through them, for discharging the surplus water. The fact that the river channels are on the ridges gives a comparatively easy command of the country. By throwing a weir across the head of the delta and running canals along the margins of the branches, the entire delta can be irrigated. Since the whole area under command of the canals is subject to inundation, it is however generally necessary to construct a series of marginal embankments in connection with any delta scheme, to confine the floods to the river channels, so as to prevent the crops in the low ground being destroyed by the floods. Rice which is the chief crop grown on all the deltaic tracts, requires a large volume of water. As it benefits by a constant change of water, the ryots when they get the oppor-

tunity, drain and refill the fields as much as they can. Hence, drainage works are more necessary in connection with delta irrigation schemes. Thus, the great irrigation systems of the Madras Presidency (except the Mettur and Periyar projects) differ fundamentally from those of North India. The bulk of the canal irrigated area in Madras lies in the deltas and the problem has been to regulate the supply, rather than to extend it to new areas. There has been no great expansion of irrigation in the deltas, although there is some scope for development.

The canals of North India are mainly constructed on the flat surface of the Indo-Gangetic lowland. This flatness of the surface enables the construction of the canals very rapidly, but it is, as has been mentioned, a serious obstacle for the construction of reservoirs for the storage of water. Throughout the Indo-Gangetic plain, the level nature of the surface enables the main canals of a system to be brought to the backbone of a doab—the interstream watershed.[30] The mode of operation of the perennial canal varies according to the season of the year. During the summer monsoon season, the river rises high in flood and attains a flow far greater than the capacity of the irrigation canal which draws from it. The weir is then lowered or removed to permit free passage of the flood, and the sluices of the intake are brought into use, to regulate the flow of water into the canal and to prevent the intrusion of silt. At this time of the year, the canal attains its fullest flow, at a level which will carry water to all parts of the system at the same time. During the cold weather season, the case is entirely altered; the river then falls to a low natural level and a tiny flow, and the flow of water in the canal falls through necessity or design, to one half of its summer maximum, or less. To maintain the level of water required for distribution to all parts of the system, it is necessary to raise the weir and restrict the number of open branches in the distributive system, so that outgoings shall not too greatly exceed incomings. A system of rotation is therefore followed at this time, by which each branch canal is alternately opened and closed for brief periods, whose length depends on the flow of water at that time in the main canal. Owing to a generally unreliable rainfall and the consequent greater need for irrigation, it is customary to limit it to a portion of the area commanded by the canals.

30. Williamson. op. cit. Geographical Journal. Volume 65 Page 148.

In general, the various parts of a canal system come under irrigation in turn, the remainder lying fallow, or being sown with the more drought-resistant crops. But the whole area benefits from the rise of the subsoil water level due to the introduction of irrigation and from the additional moisture of the air and it is probably correct to say that the area benefited by canal irrigation is some 2½ times the actual area annually irrigated.[31] From the point of distribution of canal water, some differences are clearly noticeable among the various provinces of India. In Madras and Orissa, water is thrown widely over the largest area possible, but in the United Provinces, it is often the rule to restrict the area irrigated to a certain proportion (varying from 40 to 80%) of the total culturable land.[32] However, the available supply is meted out in the Ganges–Jumna doab over as large an area as possible, in order that each district embraced within the command may have a certain percentage of cultivation assured, thus keeping the maximum number of people above starvation level. In the Bombay Deccan, the irrigated area is only about ⅓ the area commanded. In the Chenab and lower Bari doab canal systems, the proportion is about ½; in the Sirhind Canal only ¼ or ⅕ of the culturable area is allowed to receive water. Restriction becomes necessary, since the light soil of upper India is liable to become water–logged and the spring-level unduly raised, if irrigation is spread over the entire area commanded. This evil is not feared in the less permeable soils, or where the drainage of the subsoil is good.[33]

In general, in the United Provinces, the rivers are unable to supply any greater volume and schemes are limited to increasing the efficiency of the existing works and to assist in the sinking of deep tube wells. Irrigation development in the Punjab is different from that of the United Provinces. In the Punjab, it is still possible to extend the area under irrigation to the lower doabs, especially as the Bari doab and Sirhind canals deprive the river only of a very small part of its volume.

In the construction of distributaries and canals, care must be taken to see that erosion is prevented. The gradient would vary in the different soils and naturally so. The usual slope of the channels now given is 1·6 feet per mile for the first mile or so, and then the slopes are reduced to 0·8 feet per mile, or even 0·56 feet

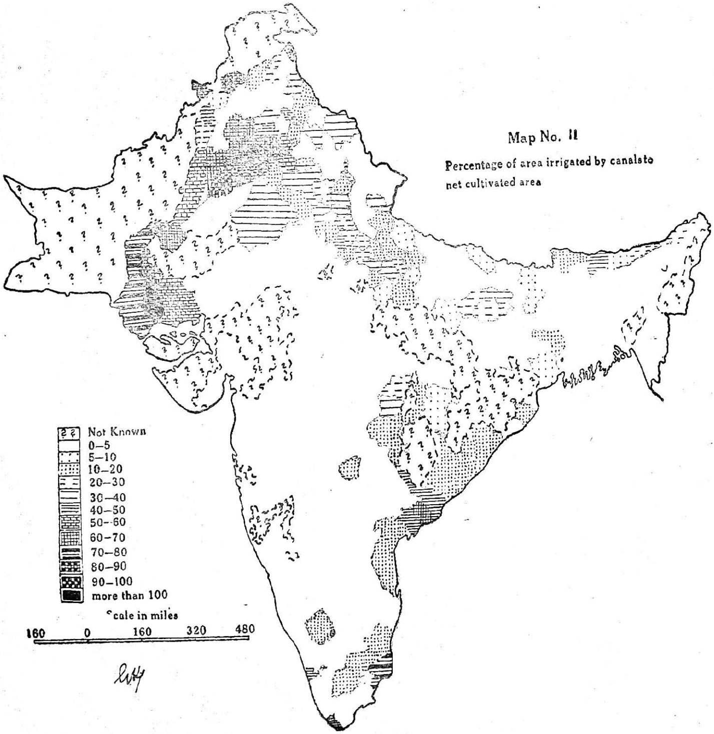
31. Triennial review of irrigation 1918-21. Page 9
32. Buckley. Irrigation Works of India. Page 289.
33. In portions of Egypt, practically the entire culturable area is flooded!

per mile, except where the water contains heavy silt. By reducing the slope it has been found that (1) the channels are no longer eroded by the stream and (2) the velocity is so reduced that a thin layer of clayey silt is deposited on the wetted perimeter of the channel, which considerably reduces the loss by percolation. The level of the water should be made to conform to the contours to avoid high embankments with consequent loss by percolation.[34]

During the last twenty five years, several of the largest canal systems of the Punjab have been linked together in a way that makes them now, as it were, parts of a larger whole. The works that accomplished this integration are known as the Triple canal project. The underlying principle is the diversion eastwards of the comparatively large winter flow of the Jhelum to aid the scantier winter flow of the Chenab, Ravi and Sutlej. High up the Jhelum, a canal takes off from the left bank and flows along many miles of hill slopes and across the Jhelum–Chenab doab on which it irrigates about 350,000 acres of land; but this is merely incidental, since the bulk of its flow which reaches a maximum of about 8,500 cusecs, is discharged into the right bank of the Chenab and withdrawn a few miles further down from its left bank to supply the lower Chenab system, an older one of over 2 million acres. This transfer from the Jhelum for the benefit of the lower Chenab system permits the withdrawal of an equivalent amount of water at a point further up the Chenab to irrigate the area between the Chenab and the Beas. The canal which takes in this water is one of the largest perennial irrigation canals in the world, with a full flow of 11,700 cusecs. It irrigates the upper Chenab system, an area of 600,000 acres in the doab of the Chenab and the Ravi, and by an immense level crossing of the Ravi, it sends nearly 7,000 cusecs at full flow to irrigate a million acres in the lower Bari doab, the third component of the triple canals system. Indirectly this project has also helped the waters of the Sutlej to be used for a large scale development of irrigation on its left bank.

34. It is considered that a velocity, more than two feet per second (that is ⅓ of a mile per hour) is undesirable in a navigable canal and a velocity of 2½ feet per second is a marked impediment to boats towed by men or animals. If the canal is not to be navigable, the most economical velocity as regards its size is of course the highest one which the soil will stand and this is true of every part of the canal system. It may be 1·5 to 2 feet per second in light sandy soil, about 3 feet in loam, 4 feet in stiff clay or kankar soil and between 5 and 6 feet in shingle and boulder strewn regions.

A study of the statistics of irrigation shows that canals form the most important source of irrigation. More than half the total irrigated area is under canals. In 1918, the total area irrigated by canals was less than 24 million acres, but by 1938 it had increased to more than 33 million acres. This period has shown the growth and development of such schemes as the Sukkur barrage (completed in 1932) which is expected to command an area of more than 5 million acres, Mettur dam (completed in 1934) irrigating about 1·5 million acres (including the old delta and the new area) and other large schemes like the Nizamsagar, Krishnarajasagar, Sarda canals etc. In the same period, the total area irrigated (all sources put together) has increased from 52·4 million acres to 63·6 million

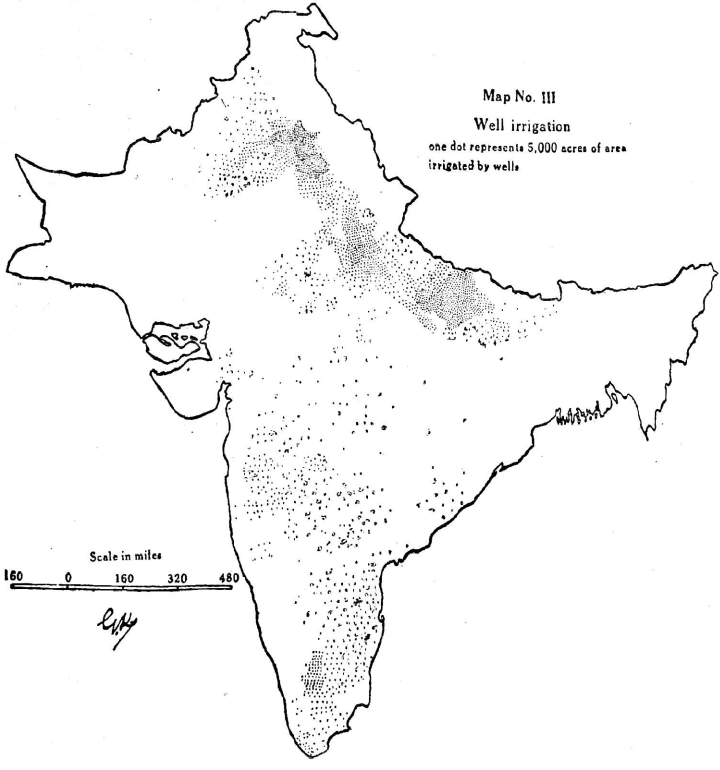


acres. It is thus obvious that much the greater part of the increase in the irrigated acreage is due to the improvements in perennial canal irrigation. It is also true that the extent of the area commanded by the inundation canals has been steadily diminishing and there has been a regular conversion from the inundation system to the perennial system. This is particularly so in the Punjab, Sind and parts of the United Provinces. Maps I and II show that canal irrigation is of prime significance in the Indus valley (Punjab and Sind), the Ganges Jumna doab in the United Provinces and in the deltas of the Godavary, Kistna and the Cauveri.

Irrigation by means of perennial canals has also its dangers. It is just as important to get the water off the land as to get it on, and few ryots still seem to know it. The water comes to the cultivator without much labour on his part and the high esteem in which he holds it, leads to over-irrigation without adequate drainage. This is especially true when silt is the only manure. The clogged surface and unaereated soil which may result, tend to bring about depreciation of the harvest, both in quality and in quantity. It would be a very desirable improvement if the assessment for water is made on a volumetric basis. This would decidedly make the ryot use the water much more economically than at present and produce salutary results.

Wells.—Wells comprise all those works which give access to the subterranean supply, or to the waters of the rivers, which running deep below the level of the ground, have to be lifted vertically before they can be used for flow irrigation. Next to canals, wells are the most important source commanding nearly a quarter of the total area under irrigation. They may be fissure wells in rock, spring wells, or percolation wells. The fissure well is sunk deep into the rock in the hope of striking a water bearing fissure and is the characteristic type in the Peninsula. In the spring well, an open shaft is excavated until an impenetrable layer of clay or *kankar* is reached, through which a narrow bore hole is sunk to reach a water-bearing sand. The first uprush of the water carries sand with it until a cavity is formed in the sand below the hole. Into this cavity the water percolates and thence it rises into the bottom of the well, as if from a spring. The terms "spring" and "cavity" are therefore indiscriminately applied to this well. The percolation well is simply an open shaft sunk down to a layer of

water-bearing sand. Into the hollow, water penetrates through the sides and base. These percolation wells are characteristic of the submontane gravel zone.



The spring well possesses important advantages over the percolation well, because it yields a larger flow of water and its foundations are not so easily destroyed by over rapid working. In Sind and the United Provinces where the firmer alluvium has been deposited, impermeable layers of clay are to be frequently found and the spring well is much the more usual type. In the Punjab, where the alluvial deposits are of much coarser structure, clay is

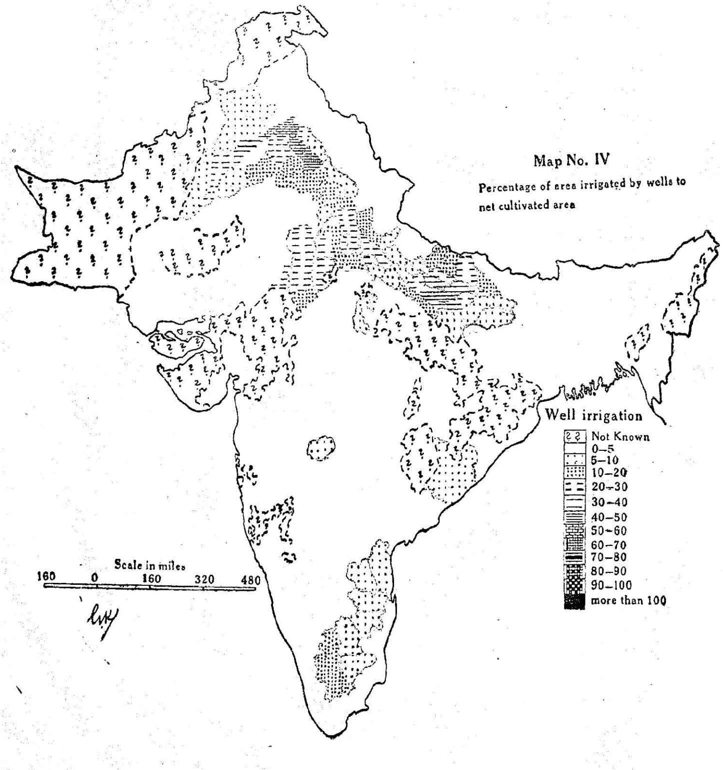
seldom to be met with and the cultivators are restricted to the use of percolation wells.

"Thus, wells vary greatly in construction and capacity. They may be mere holes in the ground, or elaborate masonry structures of great width and considerable depth, or tubes of small bore, from which by power pumping large supplies of water can be obtained continuously throughout the year".[35] They are mainly of two types, the *Pukka* (i. e. permanent) or the *Kacha* (i. e. temporary). Both the spring well and the percolation well may be either *Pukka* or *Kacha*. The former involves masonry work and is the chief well in the Punjab, where the great depth of the water table renders the strong walls necessary. The *Pukka* wells are very costly (on an average between Rs. 300 to Rs. 600) and it is only the better class ryots that can afford to own such wells. The *Kacha* well is simply a hole dug in the ground. Where the *mota* exists, the hole is dug down to it and then narrowed to pierce the clay. In the absence of such beds, the hole is dug down to percolation level and then narrowed and lined with brushwood, the water being thus filtered as it passes through. In the United Provinces with the water-bearing strata lying near the surface, *Kacha* wells are more common. The life of a temporary well is hardly ever longer than one season. It is a poor man's well, seldom irrigating two acres, often less than one acre. It has several advantages besides its cheapness. It can be placed in close proximity to the crop. It can be sunk in a few hours and if unsuccesful, the loss is negligible. In the case of a *Pukka* well, many trial borings involving considerable expenditure will have to be made before it could be completed. Both permanent and temporary wells draw their supplies of water from a very dependable source, but even they may fail if they are overworked in times of drought, when the level of the underground water falls too low to be tapped. In recent years, a third type of well—the tube well—is becoming important.

The capacity of these wells differs very considerably. The *Kacha* wells as already stated may irrigate an acre or two in their immediate vicinity; the tube wells may have a capacity of as much as 35,000 gallons an hour and may irrigate up to 150 acres, in addition to affording protection for another 100 acres. Between the two extremes come the masonry wells, or the permanent wells.

35. Indian Agricultural Commission Report. op. cit. Pages 332 and 333.

In some of these also, perforated pipes have been sunk which tap largely increased supplies, often at no great depth.[36] The average area irrigated by a permanent well in the Punjab is 12 acres. in the Deccan, the corresponding area is 2 acres, in Madras it is 3 acres and in Central India, a little more. Apparently it seems that it takes four Madras or Bombay wells to irrigate the same area as one well in the Punjab. But this does not give a correct idea as to the relative efficiency of the wells. In the Punjab, wells irrigate extensive areas of cereal crops without any special or high cultivation.



36. In Madras, small wells sunk for the purpose of supplementing irrigation from tanks the supply of which is precarious, are very common.

With the cold weather of northern India and the rich alluvial soils, highly retentive of moisture, very few waterings are required to bring the crop to maturity. Considerable reliance is also placed on the winter rains which seldom fail. The conditions in the Peninsula are very different. Throughout the year, the climate is hot and the sun powerful. Frequent waterings are necessary to mature the crop and it rarely pays to irrigate from wells without the expectation of a very heavy out-turn of cereals, or of some specially valuable crop such as sugar-cane, or garden produce. Highly intensive cultivation and heavy manuring are required. It is therefore not justifiable to make a comparison of the efficiency of wells between north India and south India, based upon the area irrigated by each.

The type of well used is largely determined by the geological formation. The conditions for succesful well sinking are more favourable in northern than in southern India and this is especially true of tube wells.[37] The well reaches its maximum development in the United Provinces where much clay is present (except in the district of Bundelkhand) and the water table lies close to the surface. On the other hand, in the Punjab clay is often absent and pure sand extends to a great depth, so that the wells can seldom be sunk to any great advantage, far from a river. In the Punjab, well irrigation is found in the districts of Sialkot, Jullundur, Amritsar and Gujranwala. In peninsular India, it is only in the alluvial lowland of the Gujarat and the coastal plain of the East that conditions in any way approximate to those in northern India. Over the Peninsula as a whole, the run off is rapid; there is only a shallow depth of unconsolidated material and there is little contribution to the subsoil reservoir from rivers. (See Maps III and IV).

The main limitations to the extension of well irrigation consist in the amount and quality of the subsoil supply, the depth at which it is found below the surface, the conditions of soil and subsoil favouring or impeding construction and the consequent expense of construction and lifting the water. In the alluvial tracts of northern India down to the line of the Jumna river, the subsoil supply of good water is practically inexhaustible, and its depth

37. Irrigation from tube wells does not generally pay, unless a valuable crop such as sugar cane, potatoes or tobacco is grown. It is never as cheap as canal irrigation. In the absence of detailed subsoil survey, nothing definite can be asserted about the possibilities of further development.

generally moderate; the soil and subsoil also generally favour construction.[38] It is difficult therefore to place any limit on the eventual extension of well irrigation, except the limits of cultivation. There are already districts in the Punjab and the United Provinces which have all the wells they require. South of the Jumna the water lies deeper and is less abundant; it is also more liable to exhaustion in times of drought; rock has to be penetrated, and the expense of both construction and lifting is greater. In addition, more numerous waterings are required, the total area irrigated is smaller and well irrigation generally does not pay except for a valuable crop. Development here must be exceedingly gradual and can only increase *pari passu* with an improvement of the general resources of the people. Likewise, there will always remain extensive tracts such as the black soil plains and the stony uplands of the Deccan trap and crystalline areas, where wells are impossible or will never pay. Notwithstanding the difference in local conditions in every province in India, well irrigation can be largely extended to considerable advantage. An increase in the number of wells is very desirable.[39] The Irrigation Commission opined[40] that it may not be over sanguine to look forward to a period when the area under well irrigation throughout India will have doubled. However, there has on the whole been little or no expansion in the area under well irrigation since the Irrigation Commission reported and there are great fluctuations in area from year to year. Normally the area under well irrigation is about 11·5 to 12 million acres. The immense value of wells in years of drought is shown by the peak figures of such bad years as 1918–19, 1920–21 (14 million acres) and 1937—1938 (15·6 million acres). Where there has been extensive construction of canals, wells have been superseded, the cost of irrigation from canals (Rs. 3-8-0 per acre) being but a fraction of that from wells (Rs. 22-per acre). This is especially true of the Punjab. Even when the expansion of canal irrigation which has rendered wells unnecessary in large areas is taken into consideration, it is disappointing that so little progress in sinking ordinary wells should have been made since the beginning of this century. The high cost of construction, the insecure tenure on which the land is held, the fragmentation of holdings, the dis-

38. Irrigation Commission Report. op. cit. Page 19.
39. Agricultural Commission Report. op. cit. Page 344.
40. Irrigation Commission Report, op. cit. Page 20.

putes amongst cosharers, the uncertain return on the money invested and the lack of power for lifting the water, have all, either singly or in combination, proved limiting factors in this respect. Lack of water is rarely an obstacle in the alluvial tracts of the north; in peninsular India it is often a difficulty.

Well water is costly since it has to be lifted, often from considerable depth. The expenditure of money, energy and time rendered necessary, tends to economise the use of water which benefits the crop in several ways. It is not liable to be overdosed with water; the ryot pays more attention to all the necessary details like weeding, interculture, proper grading of channels etc., every one of which is of prime importance. This is particularly so in the case of the permanent wells, since it is only the better class ryots that can afford the expenditure involved, with the result that the area commanded by them is more intensively cultivated.

Tanks.—Under tanks are included all works for the storage, of water and all natural depressions of which the water is used for irrigation. The simplest form of tank is made by throwing a bund across a line of drainage. Typically the tank is a very modest affair consisting of an earthern embankment bund blocking the line of a stream, or closing the outlet of a natural depression in which the rain collects; in places, it may take the form of a hollow in the ground fed by a channel cut from a neighbouring stream. Sometimes a series of dams are placed across a valley so as to give a chain of tanks the surplus from the higher feeding the lower. In parts of the Central Provinces characterised by an upland and basin ground-plan, the tanks are placed on the hill slopes and the water they collect is allowed to soak through the subsoil into the cultivated fields below. In the Peninsula, the relief of the land gives many opportunities to throw dams across streams and valleys, in order to impound the run off of the rainy season in reservoirs or tanks. On the level Indo-Gangetic plain, there are no opportunities for storage except in the United Provinces, where there exist numerous small depressions called '*jhils*', the remnants of the old stream beds. Water is collected in these *jhils* during the rainy season, to be used later for the rabi crops. In another less common method, the rainfall is impounded on the uppermost of a series of fields and is drawn off at will, to irrigate those at lower levels.

As in the case of wells, tanks comprise a great diversity of works, varying from the storage reservoirs the distributing chan-

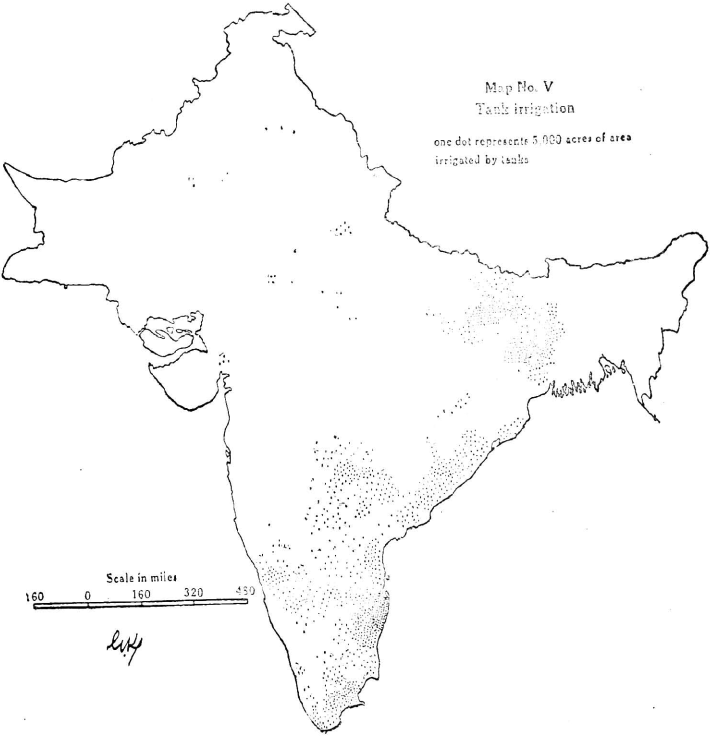
nels from which irrigate several thousand acres, to works which irrigate only a few acres. The construction of these tanks has reached a very high state of development, especially in South India and mention must be made of the Cumbum tank which irrigates an ayacut of 5,000 acres in normal years. Occasionally tanks act as regulators and storage reserves for canals and sometimes their purpose is to maintain the water level in the wells in their immediate neighbourhood. The larger tanks are with very few exceptions Government works, as are the numerous small tanks in the ryotwari areas of Bombay and Madras. Elsewhere, the smaller tanks are owned by the village communities and by private individuals.

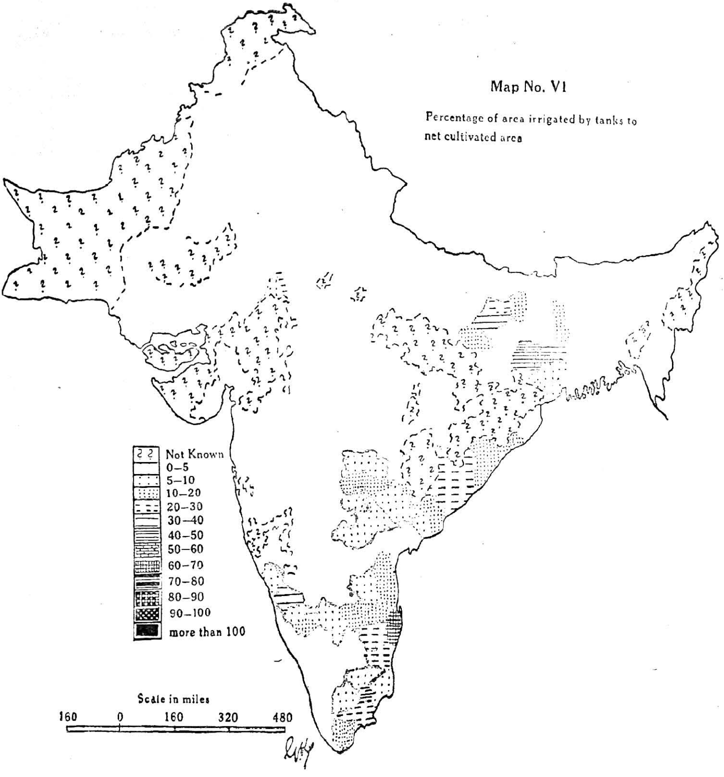
A tank merely corrects the vicissitudes of a notoriously fickle rainfall. The untimely distribution and the abnormal downpours of the rainfall of a given season are husbanded to best advantage. The one obvious fact is that the tank fails when the rain fails. Even in the case of the largest tanks, it is neither the policy nor the practice, to attempt to hold over water from one year to the next, in view of the heavy loss arising from evaporation and leakage.

Tank irrigation is in many respects uneconomical and wasteful. Tanks are from their nature shallow and consequently suffer heavily from evaporation. In the hot weather when most of them are dry, they provide at best grazing grounds for the cattle of the village. They themselves may occupy up to a quarter of the area they irrigate, which is thus lost to crop production. Moreover, being still reservoirs, the silt brought down by the streams is deposited in them. Consequently, the lands below the tank suffer from the absence of silt and the tank itself tends to get filled up, thereby minimising its own capacity. This is said to be the principal reason for the decline of the tank-irrigated area in the Southern Maharatta country.

It cannot be denied that tanks are a frequent source of quarrel and litigation amongst the ryots whose lands are affected by them. Nevertheless, tanks are justified on the ground that they utilise a large volume of water which would otherwise run to waste. Furthermore, they frequently occasion in their immediate neighbourhood, a rise in the subsoil water level and thus aid in the extension of wells. A combination of well and tank is seen where wells are sunk in the ayacut or land commanded by a tank and in such cases, very intensive cultivation is frequently possible. Thus,

about three fourths of the wells in Mysore and a large number of wells in Madras are directly dependent on tanks. There is however a considerable waste of land along tank bunds and the distributing channels. It would perhaps be difficult to prevent abuse, but the waste of space which is such a common feature of tank irrigation seems to call for some cure. It is suggested that in view of the increasing difficulties experienced in procuring nitrogenous manure, these lands may be set apart for such purpose.





Tank irrigation is characteristic of the Madras Presidency, although it is found to a lesser extent in Bengal and Bihar. The tanks in Madras nourish from 3 to 3½ million acres of land each year, an area rivalling that watered by the great detltaic and lesser canal systems. (See Maps V and VI). In number and in the area they serve, they are most conspicuous in the valleys opening out of the hill country of Chittor and North Arcot and on the coastal lowland to the east lying between, but outside the respective spheres of the Tanjore and Pennar delta canal systems. In the district of Chingleput, 90% of the total irrigated area is fed from tanks.

Although irrigation is not well developed in the Nizam's dominions, yet, the tank remains the chief source. It is considered that there is endless scope for the development of small tank schemes in the United Provinces.[41]

Karez system.—A *karez* is a tunnel which taps the underground springs. It is found in and around Quetta. These tunnels which are driven into the hill sides are just large enough to permit a man to creep through. Shafts are sunk from the surface, about 50 to 80 feet apart along the line which the karez is intended to follow and the bottom of these shafts is connected by a tunnel; the spoil is lifted up the shafts by baskets. Lack of timbering or lining of any kind causes the karez to fall in and get choked up. The Zhara karez has a tunnel which is driven about 5000 feet into the hill side with a slope of 3 in 1,000; it is about 3 feet high and about 20 inches broad, giving a discharge of 9 cubic feet a second.

The other sources of irrigation are of various kinds. "They have never been clearly defined, but consist for the most part of temporary bunds for the storage of rainfall, of lift irrigation from rivers, and of channels from rivers and streams which are too small to be classified as canals."[42] Thus there are the temporary dams known as the "Kurumbus," found in the Cauvery, Amaravati and the Coleroon which are built out from the head of each channel, when the supply in the river begins to run low. Spring channels are excavated in the beds of large rivers like the Hagari, Tungabhadra and the Pennar. They often extend for several miles and starting at their head below the water level in the river bed are taken down stream at a flatter gradient than that of the river bed and of the country around, with the result that they are soon high enough to be taken through the bank and gradually above the level of the land where they can be used for irrigation.[42a]

In the aggregate, over 10% of the total irrigated area is from these 'other sources' and they are thus of grave consequence to

41. Indian Agricultural Commission Report. op. cit. Page 338, and A. V. Williamson. op. cit. Geographical Review Volume 21. Much of this account is directly based on R. C. Wood. "Irrigation", Bulletin No. 71 of the Dept. of Agriculture, Madras.

42. Indian Agricultural Commission Report. op. cit. Page 327.

42-a. R. C. Wood. op. cit. Page 8.

agriculture, but each individual work is usually quite small. There is great scope for extending the work of this character and also for increasing the efficiency of those already constructed.[43]

Canal irrigation is as important if not more so than all the other modes put together and it is specially developed in the United Provinces, Punjab and Sind. Tank irrigation is most extensive in Madras, [44] where there are about 35,000 tanks. The total area irrigated by tanks in Madras is nearly as large as that irrigated by canals. Well irrigation is most important in the United Provinces where it accounts for more than half the total irrigated area. The greater part of the area under 'other sources' is contributed by the United Provinces, Bihar and Orissa.

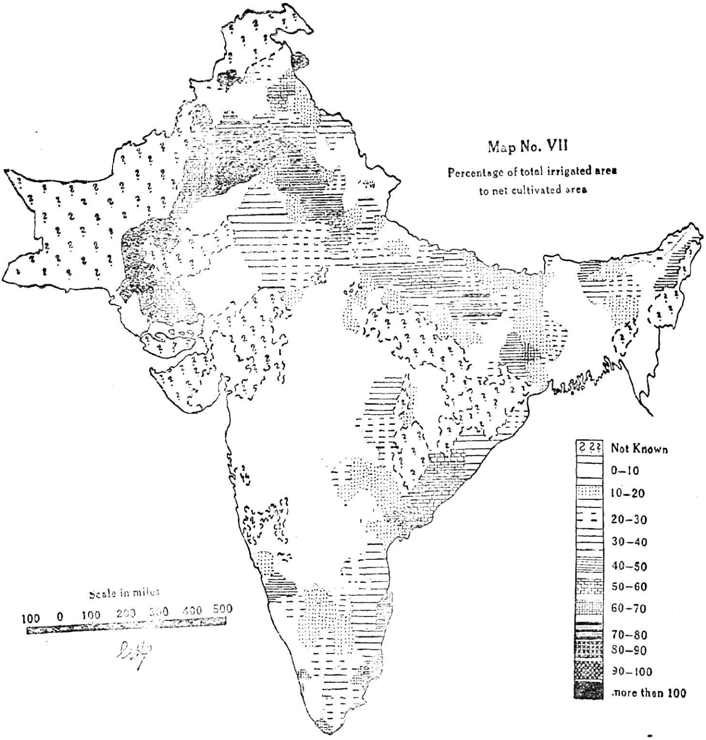
In a large country like India with wide variations of rainfall from year to year, it is obvious that the area under irrigation does not remain constant but varies remarkably. The drought in any year is as far as possible countermined by the construction of temporary wells. From the published statistics, if the averages for five year periods are calculated, it is found that the total area under irrigation in India has steadily increased from 53·98 million acres (the average for 1917 to 1922) to 60 million acres (the average for 1932 to 1937) and to 63·6 million acres in 1938. In other words, there has been a growth of about 10 million acres. If the different sources of irrigation are examined in detail, it is found that the bulk of this increase is due to the development of canals; wells show a slight growth, while tanks and other sources show a diminution. The area commanded by the canals have shown a steady increase and have not been fluctuating from year to year as in the case of wells, tanks etc., and naturally so. The fact that the bulk of the growth is under canals obviously suggests that the water supply is much more assured at the present day. The increase under canal irrigation is mainly in Sind (since the Sukkur barrage), United Provinces and the Punjab.

India has a total cultivated area of over 300 million acres of which more than 60 million acres (20%) are irrigated. 32 million acres owe their supply to canals; wells account for nearly 15 million

43. It must be remembered that wells are the most important type under 'other sources'.

44. It is found even in Bengal, Bihar and Orissa.

acres, tanks for 8 million acres, while the unclassified 'other sources' account for the remainder. Approximately therefore, it is true to say, that just more than half the total irrigated area is commanded by the canals, and wells account for more than a quarter.



From the point of view of vital importance to agriculture, perhaps more important than total irrigated area, is the proportion of the irrigated area to the total cultivated area. (See Map VII). It is obvious that the higher the proportion, the greater is the importance of irrigation.

On a provincial basis, it is found that 86% of the total cultivated area in Sind is irrigated; in the Punjab it is 56%; in the Frontier Province it is 44%; in the United Provinces and Madras it is 28%; in Bihar and Orissa it is 22%; in Assam it is 10%; in Bengal it is 8%; and it is 4% in the Central Provinces and Bombay. These figures show that in a Province like Sind, practically the entire cultivated area is irrigated, and but for irrigation, Sind would be a desert. In general, it is true to say that the proportion of irrigated area to total cultivated area increases as the rainfall diminishes and vice versa. Sind, Bengal and Assam could be cited as examples to prove this dictum, but there are remarkable exceptions to this rule as in the case of Bombay, Central Provinces and Berar. This peculiarity has to some extent been accounted for, by the presence of the regur soils in these regions.

30% of the total irrigated area in India is in the Punjab, 20% in the United Provinces, 17% in Madras, while Bihar and Sind have each 8%. It is not surprising that in a region of subsistence agriculture like India, much the greater proportion, actually 82% of the total irrigated area is under food crops. About 30% of the total irrigated area is devoted to rice, 20% for wheat, 6% for millets, 14% for other cereals and pulses, 7% for sugar cane and another 5% for other food crops. The only important non-food crop grown under irrigation is cotton which occupies the same acreage as sugar cane.

Defects of Irrigation.—Some mention must now be made about the dangers associated with irrigation. Excess of water is bad for the plant; it suffocates the plant preventing it from taking the necessary supply of oxygen. It is just as important to get the water off the land as to get it on and arrangements must be made to remove the excess of water as rapidly as possible, either by surface drainage, or by underground drainage.

Alkalinity.—Long continued irrigation brings about certain changes in the soil, especially if the water is charged with some salts. In tropical climates where evaporation is great, there is always the danger of alkalinity. In dry climates, the upward movement of the water will be increased, partly because the rainfall is less abundant and partly also because the rate of evaporation at the surface is proportionately greater, owing to the greater heat of the sun. The result of an excess of upward movement over downward movement is to cause an accumulation of salt, at or near

the surface, because, the salts are left as residue by the water that is evaporated.

Repeated irrigation is often attended with an increase in the salinity, partly because, over large areas it may raise the water table and partly also because, any water applied at the surface will be largely evaporated there, resulting in increasing the amount of salt in the soil by the amount which the water itself contained in solution. This is more likely to occur when the water is sparingly used, since heavy floodings might cause such a downward movement as to remove a portion of the salts down to the bottom water and out of risk of further injury; light waterings which would never reach the permanent water would be wholly evaporated at the surface and the dissolved salts left to increase the trouble. It must always be remembered that it is actually the concentration of the salts and not their total quantity that brings about evils. To mitigate the trouble methods are adopted which aim at distributing the salts through the soils, thus reducing their concentration.

It is suggested that the proximity to the sea has something to do with the development of alkalinity, but it does not appear to be true. It is the salts in the water used for irrigation that seem to be the dominant cause.

The evil effects of such alkalinity which is brought about by a concentration of the soil solution is twofold. Any concentrated salt solution of whatever sort, upsets the normal life process of the plant, because, by its greater osmotic pressure, it draws the sap solution out of the cells and thus causes the plant to wilt. This in itself is sufficient to do remarkable harm, but there are also in addition, some salts which can and do produce a distinctly poisonous effect on plants, when present in anything more than minute traces. The salts that are frequently found are sodium carbonate and the chlorides and sulphides of magnesium and sodium. Sodium carbonate is one of the worst, because of its secondary effect upon the texture of the soil. By deflocculating the clay particles, it puddles the soil and makes it extremely impervious to the passage of water, thus aggravating the situation.[44a]

The appearance of plants growing in areas partially affected with salinity but not to the extent to cause death, is one of general sickliness and ill health. The foliage is pale and often sheds early,

44-a. R. C. Wood. op. cit. Page 50 et. seq.

the plant is stunted and does not produce fruit. Certain plants are less able to resist salinity than others and all plants suffer more, when they are young.

Well water is generally saline and its long continued use for irrigation may in many cases render the land alkaline. In such cases, precautions to prevent alkalinity must be taken by frequent dressings of silt and by improving the texture and perviousness of the soil. One of the most marked features of alkalinity is to render the soil close and sticky and thus aggravate the conditions which originally were the very cause of its appearance. The use of bulky organic manures (for e.g. farm yard manure or town rubbish) counteracts this and by keeping the soil open, enables the water to pass through. Even if it does not reach the bottom water, it is at any rate diffused more widely through the soil and the risk of concentration avoided. The permeability of the soil can also be improved by the addition of gypsum (calcium sulphate) and it is a good remedy, especially where sodium carbonate is the source of the trouble. Digging up the whole top salt-impregnated soil to a depth of four feet if necessary, might prove not only successful but also profitable. It is a matter of observation that lands, when once they are allowed to go out of cultivation, rapidly deteriorate.

None of the remedies suggested remove the cause of the trouble but merely mask its effect. The only remedy is adequate drainage and the simplest method of doing this is by flooding, i.e. covering the surface with a copious supply of water and allowing it to drain away, bearing the salts with it. The quantity of water must be adequate, else the remedy will not only fail, but also do a great deal of damage to the land by increasing the evaporation.

Under the old system of basin irrigation in Egypt, the land was thoroughly washed for 50 days in the year and was kept sweet. The perennial system which has replaced it implies as many as 20 waterings in a year with a total depth of 7 feet; the moisture never sinks more than 2 feet into the soil and is then evaporated. The increase in alkaline lands is therefore not surprising, since special precautions have not been taken until recently.[45]

The conditions of alkalinity in India vary from Province to Province. It is not very serious in Madras where there are no

45. Foaden and Fletcher Text book of Egyptian Agriculture. Vol. 1 pp. 200 et seq.

large stretches of alkaline land calling for reclamation. Alkalinity occurs sporadically, sometimes on dry lands, more often on wet lands. There is however an increasing area of alkaline land to be found in the region irrigated by the Periyar project in Madura District. The water is silt-free, green manure is difficult to obtain, the land is not of an alluvial character—these make the Periyar region entirely distinct from the deltas. It is found that the construction of the Mettur dam has prevented the silt of the Cauveri from reaching its delta, resulting in a diminution of soil fertility and consequently of yield, in Tanjore. It remains to be seen if this would cause the features of alkalinity to be developed in this region! In the Sukkur barrage zone alkalinity is noticeable in the Khairpur tract.[46] There are however extensive alkaline tracts (known as *usar*) in the United Provinces with an estimated area of about 3 million acres, mainly in the neighbourhood of the older Ganges Jumna canals.[47]

Advantages.—Besides the direct benefits, there are four kinds of indirect advantages which are claimed for irrigation works. They are: — (i) the increase in the general wealth and prosperity of the community, resulting from the increase in the produce of cultivation, due to irrigation, even in years of normal, or more than normal rainfall; (ii) the effect of irrigation and of large storage works in increasing the humidity of the air and in raising the level of the underground water supply; (iii) the prevention, mitigation of the horrors and the cost of famine; and (iv) the production of hydro-electric power.

Irrigation works have been divided into three groups:—(a) the productive ones where an annual income of more than 5% on capital investment is obtained, (b) the protective ones with an annual income of 3 to 4% on capital investment but bringing under cultivation, lands which were formerly uncultivable and (c) the unproductive works where the returns are less than 3% on capital outlay. After a very careful enquiry, the Irrigation Commission has come to the conclusion that if a work is likely to yield a return of 5% or more on the actual capital cost excluding charges for

46. A. V. Williamson. op. cit. Geographical Journal Vol. 65 page 144 and Maneck B. Pithawalla. "A geographical Analysis of the Lower Indus Basin" Part 2 page 33.

47. This may be due to distributing the canal water over as large an area as possible without restricting it to a portion of the area commanded.

interest during construction, it is unnecessary to consider the question of indirect returns; and if it will not yield a return of 3%, then indirect returns in themselves are not likely to be considerable enough to justify its construction. When the advantages offered by irrigation works are so small or restricted that the people who enjoy them are not able to pay the cost of providing them, it may be inferred that whatever value they may have in years of famine, their effect in increasing the wealth of the country is small.[48] In the opinion of the Commission, all works must be sanctioned when a net annual return of 3% or more is anticipated.

With water storage on a large scale, hydro-electric power can be generated. In the Ganges canal systems, falls of even 5 to 8 feet are utilised for power generation. Heads varying from 50 to 120 feet are available in several parts of India. In South India particularly, the lack of natural fuel resources and the distance from the sea for the import of foreign coal or oil, are disadvantages which can be made good by the development of hydro-electric power, as has been amply demonstrated by the development of the Mettur scheme. The yield arising from the development of an irrigation scheme at the present day is not merely from agriculture, but also from power generated. It cannot be said that the annual yield of 3% laid down by the Irrigation Commission is too high, but what was originally an unproductive scheme may be a very productive one at the present day, because of the additional source of revenue from power. Schemes which have been shelved once and for all as unproductive, have now to be reopened in the light of their potentialities for power development.

Nowhere else in the world is the food supply for so large a population so dependent on irrigation as in India[49] and the difficulty of food supply at the present day makes it imperative that every scheme, productive or otherwise, must be seriously considered before it is rejected. It is probable that an excuse for delay may be sought in the difficulty of obtaining constructional material during the war, but every effort must be made to improve the food resources of the country by providing improved facilities for irrigation by the opening up of schemes, large and small. In conclusion, it may be reiterated that great possibilities for the development of tanks and wells still exist and they should not be ignored be-

48. Report of the Indian Irrigation Commission. op. cit. Page 29.
49. Carrier. Thirsty Earth. Page 118.

cause they are not so spectacular as the great irrigation dams. The present emergency certainly calls for a considerable improvement in these and other minor irrigation schemes. The 'grow more food' campaign, especially in South India, will be much more productive of both useful and permanent results, if greater attention is devoted to the improvements in irrigation. This is one of the most opportune moments in the history of agriculture in India when the Government could and should directly assist in the lifting of water by the use of modern scientific lifts and by the opening up of all possible schemes of irrigation.

ORGANISATION OF GOVERNMENTAL ADMINISTRATION

(Continued from Volume XV No. 1)

BY

E. ASIRVATHAM

Centralisation Versus Decentralisation. Should administration be centralised or decentralised is a moot question and there is no *a priori* answer to it. In days when means of transport and communication were few and limited, decentralisation was more efficient than centralisation. But to–day with the shrinkage of space, centralisation in many cases is more efficient and economical. But efficiency and economy, as pointed out earlier, are not the last word in administration. Preservation and encouragement of local initiative and responsibility are even more important than efficiency and economy. Even as regards efficiency and economy, it is well to remember that there is a point beyond which centralisation ceases to have these advantages.

Centralisation involves questions of control and subordination between higher and lower levels of government. It may be political or administrative. Undue centralisation means "apoplexy at the centre and anaemia at the extremities". It not only means discouragement of local initiative, but also undue delay and consequent inefficiency. Speaking in general terms, we may say that in organising administration every effort should be made to combine the best elements of centralisation and decentralisation. We should aim at combining local initiative and administration with central supervision. Maltbie, quoted by L. D. White, writes: "Whatever is of general interest should be administered or at least supervised by the general government or its agents; and when local authorities prove their incapacity to administer efficiently a matter entrusted to them, it should be given to more capable authorities".[21] In the words of White himself: "There must be centralisation without

21. L. D. White: Op. Cit. p. 98.

consolidation and fusion, decentralisation without divorce and isolation." According to W. F. Dodd, the central government should content itself with standardisation and co-ordination, as well as with investigation and research.

No form of centralisation should be regarded as something fixed and unalterable. It is bound to vary according to time and place and is a question of degree. Centralisation, as White aptly remarks, is "a process rather than a status, and it is a process which inevitably grows out of the social environment of the age in response to the necessity for dealing with specific, concrete situations".[22] Thus education and health may be centrally administered at a low level of political development. But with the gaining of political and administrative experience, they may just as well be transferred to local bodies. England has struck upon a happy mean by providing for central direction and local administration. Local bodies can also serve as laboratories of social experimentation. After a social experiment has been tried and has succeeded in one or few localities, the central government may take it over because of its national importance.

The chief advantage of centralisation is that where the area under question is not unduly large, it makes for uniformity of standards and the pulling up of the level of administration. It eliminates chaos and a multiplicity of authorities and provides for unity and efficiency of administration. But all this is very often at the expense of local initiative and responsibility. Undue centralisation degrades local self-government and is injurious to the development of a sense of community and democratic control.

Where centralisation is desired, indirect methods seem better than direct; and administrative methods better than political or constitutional. In the U.S.A. the constitution gives residuary powers to the States. But with the passage of time, especially in recent years, the need for centralisation has been increasingly felt; and this need has been met to a large extent by informal methods. The central government in certain matters offers advice and information, but the local official has to seek such advice. In certain cases reports of work are required from the local authority by the central department. The method of inspection has proved itself to be one effective way of raising the level of administration,

22. Ibid. p. 101.

especially when a grant-in-aid depends upon the report of the inspector. In some cases, before undertaking a certain piece of work, application is to be made to some central authority and specific permission obtained. The central authority in certain cases has the power to reverse the action of the local body; to issue orders for the performance of some specified work and in cases of non-compliance, to assume partial or total assumption of activity.

Of these various methods, grants-in-aid or subsidies have been found to be the best means of promoting centralisation. A grant-in-aid is usually accompanied by certain conditions. One of them is that the receiving authority should conform to the standards of performance laid down by the granting authority. Another is that for every dollar given the receiving authority should put in a dollar of its own. Walker informs us that in the U.S.A. to-day the national government grants subsidies to the States for the construction of the main trunk roads, for certain phases of education, and for the relief of the unemployed. The States in turn grant financial aid to local governments for highway purposes, for education, poor relief, health, public welfare, police, etc. Thus it will be noticed that the federal government, which is a government of enumerated powers is expanding its authority without having recourse to the cumbrous process of amending the constitution.

Among the unofficial methods of promoting co-operation may be mentioned the growing practice of informal conferences between federal government departments and corresponding state departments. In the U.S.A. such conferences are on the increase. In India, too, we have had conferences of provincial Speakers, of Prime Ministers, and of Education Ministers for the discussion of important questions connected with their particular work.

There are cases where we can have a cross between centralisation and decentralisation. Thus, according to Walker, the police may be handled partly on a state-wide basis or even a nation-wide basis and partly on a local basis with co-ordinated control and direction and co-operative action among all the units. In an illuminating article in the Journal of Public Administration,[23] Sir Charles Harris makes a useful distinction between simple and compound centralisation. "While simple centralisation drives up the functions of decision and authorisation to the head centre, it leaves action

23. Journal of Public Administration.

when decided upon, to be carried out by the subordinate authority while the compound form removes from him action as well." The best developed example of the simple form is, perhaps, the military organisation where, as Harris puts it, at whatever point the order or decision is given, it comes down finally to be carried out by the executive authority at the lower end of the chain. The Post Office organisation affords a less complete example of simple centralisation.

The advantages of the simple type of centralisation are (1) that it has a symmetrical beauty of its own; (2) that the decisions given at the top are final; and (3) that it means uniformity of standards. Centralisation, on the other hand, means undue delay, and sometimes even inefficiency. Harris is right when he says "In many cases a less enlightened decision, promptly acted upon, is better than the quintessence of human wisdom deferred till the twelfth hour has struck." Undue centralisation, as the same writer states, means a hindrance to initiative, responsibility, and prompt action on the part of those who later have to occupy positions of responsibility. Work is made as meaningless as possible by so arranging it that a man does not see the results of his own actions. In this connection, Sir Charles Harris refers to what happened in England when in 1922 each governmental department was asked to pay the Post Office for every telegram sent. Immediately the number of telegrams went down by 50 per cent and words also became less. Under proper kind of decentralisation or devolution, mere obedience gives place to intelligent understanding and handling of the situation. Undue centralisation, as Harris blunty puts it, means that instead of training administrators, we breed red-tape worms who bury themselves "in silly little papers on silly little subjects." (Lord Wolsely).

If simple centralisation is open to many of the above objections, the case is even worse as regards compound centralisation which means not only centralised direction and control but also the performing of local services by central agencies. To use the language of Harris, "compound centralisation is an attempt to extend the horizontal stratification to the area of action, not in substitution for the vertical, but in addition to it." The simple rule which Harris recommends as regards compound centralisation is "Don't".

In considering questions of centralisation and decentralisation, we shall do well to bear in mind the sound suggestion made by the Haldane Committee that business should be distributed according to the class of persons whose interests are being dealt with and the nature of the services rendered. Class A Ministers such as

those of Defence and Postal Communications may require a large measure of centralisation, since they are ministers of *action* and employ a large number of people directly. Class B Ministers, on the other hand, such as Ministers of Education, Trade, and Agri-culture who are Ministers of *direction,* whose chief task is one of supervision and control, do not require the same measure of centralisation.

Sir Charles Harris lays down certain rules regarding simple centralisation in the form of certain "Don'ts".

These are: —

"(1) Don't regard centralisation as anything but a necessary evil at best—not even if you are at the centre; and if you are not, don't think decentralisation should stop at yourself.

"(2) Don't think the central point of view must be right in every case because it is central. Like other generalisations and abstractions, it may have lost touch with the concrete particular. Don't forget that the executive man on the circumference says things that the centre doesn't, but give him his head whenever you can.

"(3) Don't wait for the man below to extract from you a little freedom grudgingly given, but develop your integrating machinery and then give him all he can carry.

"(4) Don't consider yourself debarred from treating an exceptional case exceptionally and promptly.

"(5) Don't fall into the snare of unifying pay where the conditions of life are essentially different.

"(6) Don't cut down the discretion of the man below, or his class, by requiring submission to higher authority in future, because he has made a mistake. Teach him and try him again, but if he is unteachable, shunt him. Delegation cannot be successful unless there is power to select and weed".

When we turn from the theory of centralisation to its practice, we find that Great Britain has established the happy relationship of co-operation and partnership between the central and local authori-ties. The keyword is co-ordination. Writing on this question, Sir John Anderson[24] draws attention to the various ways in which the

24. Journal of Public Administration.

balance between central control and local initiative and responsibility is maintained. Frequently the intervention of the central government is required as a constitutional safeguard. Examples of it are found in private bill legislation, public health services, and the local administration of education. Bye-laws made by the local authority have to be submitted sometimes to the Ministry of Health, and sometimes to the Home Secretary, for approval. The clearance of slum areas and even the fixing of hackney carriage fares require the approval of the central department. The appointment of local government officials in certain cases requires approval by the centre. In certain circumstances, the appointment of the Road Surveyor requires approval by the Minister of Transport. Similar approval is required as regards the appointment of the Sanitary Inspector and Chief Constable.

A central department is sometimes authorised to make regulations governing the discharge of responsibilities by the local authority. Examples of such regulations are found in regard to infectious diseases and town planning. Direct relations between the local officer and the central government are not popular in England, although some of it has been found necessary. Thus the local Medical Officer of Health is expected to keep in touch with the Ministry of Health. In no case does the central department have the right to give orders to the local officers over the head of the authority which he serves.

Inspection is one of the best methods of exercising central control, especially in such matters as education, poor law, and public health which are matters of direct interest to the State inasmuch as they are great national services.

In a very few cases the central government is given the right to appoint representatives to serve upon local authorities. This is not a popular method and is condemned as being continental and un-British. When it is adopted, it is to meet special requirements. In the U.S.S.R., representatives of the Central cabinet are to be found on the cabinets of the constituent units.

Even to-day the central government in England exercises a certain measure of direct discretionary power over the local authority. A former power which is not in use now is the right to supersede a school board which was not doing its duty. In certain cases the sanitary authorities might be superseded. The more usual thing to-day is to have recourse to the less drastic method of *mandamus*.

The method of conditional grants is one of the best methods of enforcing central control. "Where money is sanctioned by the Central Exchequer, Parliament must be satisfied that the money is spent properly and that the service rendered is efficient". The central department in turn is controlled by public opinion as well as by the direct method of questions in parliament.

Control through audit is exercised as much in the interests of the local ratepayer as in the interests of the central government. Coupled with this method of control is the power to surcharge, which power is exercised merely for the purpose of seeing that the law and regulations that are applicable are effectively carried out. Appeals from the decisions of a local authority may be to the quarter sessions and sometimes to a public department which acts as "a clearing house of information and has a reservoir of experience drawn from all over the country".

To conclude this section, in the words of Anderson, there is in England "no disposition to abandon the fundamental conception of personal liberty and of civic responsibility. The great elected bodies of this country will never consent to become the mere agents of central power, nor will they ever subordinate themselves to any department of state in the exercise of their legitimate functions. The Poor Law is the only conspicuous exception to the general rule partly because the Poor Law authorities exercise no power over the general body of citizens".

Centralisation in India.—Turning to India under the British rule, we find that till recent times centralisation was the order of the day. Till 1773 the three Presidencies were independent of each other. But the Regulating Act of that year gave the Governor-General of Bengal the right to control the other two Provinces. This power was extended by the Acts of 1793 and 1813. After 1834, as Sapre points out, the tendency towards centralisation gained the upperhand. Control was exercised in matters of finance legislation, and administration. According to the 1858 Act the entire revenue was at the disposal of the Governor-General in Council. The provinces had no power to spend even a rupee of the revenue which they collected on behalf of the central government. Provincial budgets were carefully scrutinised by the central government. Provinces had no right to levy any tax of their own. If they wanted to borrow money for capital expenditure, they had to take a loan from the centre.

In the sphere of legislation no clear–cut line was drawn between the Governor–General's legislative council and the Provincial legislative councils. Even in the sphere of legislation which pertained to the provinces, the central council had the right of concurrent legislation. Before the provincial council could enact any legislation, it had to obtain the previous sanction of the central government and of the Secretary of State. A provincial bill could not become an act until it had received the assent of the Governor–General.

In the sphere of administration, too, the central government exercised extensive control. Recruitment to the public services was made in England by the Secretary of State under conditions laid down by him. Policies emanated from the central government, while the provinces only had routine administration. The central government could further issue orders to the provincial governments on many matters. The provincial governments were thus "strictly the agents of the central government."[24a] (Sapre), with no initiative of their own.

Within the province power was centralised in the hands of the provincial head, and in the district the Collector–Magistrate was all in all. He was responsible for the collection of revenue as well as for all matters relating to the peace of the district. Even after district and taluk boards came into existence the Collector for a long number of years was the dominant influence.

In 1871 a certain measure of decentralisation was introduced in the financial sphere. The reforms introduced in this regard under the regime of Mayo were found inadequate. So under Lord Lytton the revenue was divided into "Indian," "Provincial," and "Divided". As Sapre points out, even after this arrangement the amount assigned to the provinces was not adequate to meet the requirements; and so the deficit had to be made good as before by a fixed lump annual grant. A series of other reforms took place, the details of which need not delay us. The Reforms of 1919 made a clear separation between provincial and central finance, and the aim was to give the provinces independent sources of revenue. Nevertheless, as Dr. P. J. Thomas points out, "in regard to audit and

24.-A Sapre: Op. Cit., Ch. IX.

accounts, borrowing and allied matters the provincial governments continued to depend largely on the central government".[25]

This anomaly is to be explained by the fact that it was a necessary transition from a highly centralised to a decentralised form of government. The Government of India Act of 1935 has carried the process of devolution still further by transferring law and order and provincial finances to the provincial legislatures. "The responsibility for the finances of the province has been completely transferred to popularly elected representatives of the people".[26] Similar devolution has taken place in the spheres of legislation and administration as well.

While much advance has been made in the direction of transferring authority from the centre to the provinces, the same cannot be said in the relation between the provinces and the local boards. There was no genuine local self-government in the towns outside the Presidency towns till 1850. After that date improvement was made in pursuance of Lord Mayo's resolution and the reforms of Lord Ripon. Lord Ripon was a convinced believer in local self-governing institutions and attributed their failure in the past to their being "over-ridden and practically crushed by direct, though well-meant official interference". The Decentralisation Commission of 1909 made far-reaching suggestions for making the local bodies genuinely democratic and giving them adequate resources. In the wake of the 1919 Reforms panchayat administration in the Madras Presidency under the able guidance of Messrs. (now Sirs) N. Gopalaswamy Iyengar and T. G. Rutherford made much progress. But since then there has been a marked decline. Supersession and the appointment of special officers are the order of the day.

Central Planning. If administration is to be organised properly, there should be a governmental planning machinery, especially in the social and economic fields. We have already spoken of the necessity of having a "thinking" or planning commission at the centre to keep the administrative machinery in proper trim. Our present plea is for a governmental machinery at the centre to organise the social and economic life of the people. It is realised everywhere that the old *laissez faire* state is unsuited for

25. P. J. Thomas: Federal Finance in India p. 323.
26. P. J. Thomas: Federal Finance in India p. 420.

modern times. As Sir Henry N. Bunbury remarks, many matters which were formerly left to individual or corporate enterprise, have now become matters of active community interest. The State to-day intervenes "to guide, to stimulate, to control, to forbid, to buy and sell, to operate".[27] This being the case, the State should plan for the utilisation of its natural resources in the highest interests of the entire community, in the interests of those living at any one time as well as those yet to be. A private enterprise, on the contrary, is interested in immediate returns. What is to happen to the community a generation hence or to the country at large is not its concern. A lumber company, for instance, may cut down wood just as it pleases or a mining company may exhaust all the mining resources of a particular locality, without any thought of the future. "The essence of planning is that all the factors and not only some of them, are taken into consideration before a decision is arrived at".[28]

Social and economic planning is, to use the words of Sir Henry Bunbury, a many-sided process. It implies a general objective—the objective of so conserving and developing the natural and human resources of a country as to promote the highest well-being of the people, of which their economic satisfaction is an intrinsic part. Careful planning will obviate the piecemeal growth of departments, a phenomenon with which we are all too well acquainted in war time. It will undertake a comprehensive long-term plan with regard to such matters as land, and transferred services; the size and quality of the population; etc.

Social and economic planning is bound to vary from country to country according to the degree of private enterprise economy or collective economy which it embodies. Germany and Italy have a State-controlled private economy. The Corporate State limits the freedom of both employers and employees in the interest of the State. National defence and armaments have played an important part in the economic and social planning of Fascist Italy and Nazi Germany. In Soviet Russia, planning has been responsible for large-scale collectivist production. In Great Britain and several European countries economic councils have busied themselves with the question of planning, but their function has largely been one of advice. Advisory Councils, as Bunbury points out, are of two kinds: one representative of the various economic interests in the

27. Journal of Public Administration Vol. XVI—No. 4 p. 381.
28. Ibid, pp. 385-6.

country with an admixture of government nominees and the other made up of members chosen by the government. Great Britain has experimented with the latter type. Its functions have been "to advise His Majesty's Government in economic matters, to make continuous study of developments in trade and industry and in the use of national and imperial resources, of the effect of legislation and fiscal policy at home and abroad, and of all aspects of national, imperial, and international economy with a bearing on the prosperity of the country."[29] The Council functions largely through committees. According to Bunbury, it has not been a useful body, partly because of the British reluctance to indulge in long-range constructive planning. It has shown little or no collective initiative.

According to the other type, where the principal economic interests of the country are represented, we have a miniature economic parliament. One advantage of such a body from the point of view of the administrator is that rival interests cancel each other out, and pressure groups are not allowed to exert undue influence. Yet, if an economic Advisory Council or an Economic Parliament is kept up merely for the purpose of playing off one interest against another, it will have its serious repercussions on the government itself. An economic Council or Parliament is capable of long range planning and of co-ordinating governmental action in the field of economic welfare. It can also promote cordial relationship between business, labour, and government.

According to Bunbury, the National Economic Council of Holland is more active and more closely integrated into the work of government than its counterpart in Great Britain. It gives confidential advice to Government. The only drawback is that it deals particularly with short-range questions. In the modern State, whatever its nature may be, there seems to be a definite need for Economic Councils, whether they be of the representative or appointed type. They can give ministers much-needed advice and "aid in the conscious and deliberate planning of the use and development of the national resources".[30] They can also serve a useful part in integrating organised economic groups with political democratic institutions.

Where there is no "economic sub-parliament" or even an economic advisory council, it is of advantage to have a Central

29. Journal of Public Administration, Vol. XVI-No. 4. p. 390.
30. Journal of Public Administration Vol. XVI-No. 4 p. 391.

Economic Bureau attached to the Prime Minister or the Cabinet. The object of such a Bureau should be to overcome the limitations of pure departmentalism and co-ordinate departmental policies. As matters stand at present, it is not unusual for each department to play a selfish game, ignoring the legitimate claims of other departments. A Central Economic Bureau should study the needs of every department impartially and propose policies which would be in the best interests of all concerned. It should be in direct relation with the Head of Government and concern itself with long range planning.

In the U.S.A. semi-autonomous bodies like the Institute of Economic Research render valuable service in the collection and analysis of much useful material. They do not concern themselves with planning, since their primary business is that of fact-finding. Sometimes even academic and commercial bodies engage themselves in this task. The work which they do is free from political bias and can be regarded as genuine "staff activity".

An official body known as the American National Resources Committee was set up by President Roosevelt in 1934, reporting directly to him. It consists of five secretaries (Ministers) and several public men, business men, and academicians. It works with the help of experts and the federal agencies and is given a large initiative in selecting subjects for study. Its object is to secure the co-operation of departments and evolve schemes for the planned development of the national resources of the country. It has no executive power whatever. Its business is to discover and present facts to those who have the political power to make use of them. The only instruments at its disposal are education and persuasion.

The Place of the Expert. If national planning is to form an important part of administration, it stands to reason that we should make a greater and greater use of experts. Administration to-day is a growing business and, therefore, it has to be kept up to the scratch. The leisurely methods of administration which were suited for "the bullock-cart stage of civilisation" are no longer suited to-day. Lord Haldane is right when he says that the expert not only has a great function to fulfil, but is an absolutely necessary person. The layman does not quite know how to take him. In the language of Sir Richard Hopkins, he "regards him now with much reverence, now with no respect. Expert intervention is valued when the layman feels the need of it; at other times the

expert's operations are an impertinence, superfluous, absurd, fatiguing, perverse".[31]

Mere expertness in the sense of technical skill is not enough. To it must be added wide knowledge, commonsense, and human understanding. To use the words of Hopkins; the expert "must be ready for the increasing ingenuity and skill of professional advisers upon the other side". For some years in India we have had Commissioners and Advisers to the Government of India in the spheres of education, public health and economic improvement. But their influence is not yet widely felt, partly because some of them are men who have retired from provincial and other services and do not have a width of vision, foresight or profound knowledge. The expert should be well-versed in his subject and the technique pertaining to it. But he should never be allowed to dictate policy or give orders. As one writer puts it, "he should be on the tap, but not on the top".

31. Journal of Public Administration.

MORTALITY IN THE CITY OF MADRAS—A STUDY OF SEASONAL VARIATION—1926-'40.

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Though the importance of the study of variations in mortality is well realised, still in India a systematic and scientific analysis is very limited in this direction. The primary difficulty is the lack of adequate data. As the registration of births and deaths is compulsory only in urban areas, and even there the methods adopted are not yet perfect, an analytic study of the seasonal variation in mortality can only be undertaken for a specified region. In this paper a study of the general death-rate is made for the City of Madras for a period of 15 years, with special stress on seasonal variation.

The required data for this study is taken from the weekly reports of births and deaths published by the Corporation of Madras in the Fort St. George Gazette. It may be noted at the very outset that the figures published are bound to have omissions and mistakes in recording. In fact the recorded figures might fall short of the actuals. As the reports publish only the weekly deaths registered, the lag between the date of registration and the exact day of occurrence is another source of error. Again a portion of the deaths registered in the city may relate to population not belonging to the city as some patients that die in hospitals may not be ordinary residents of Madras. But as the study extends over a period of 15 years, the seasonal variation revealed can be considerdered to be accurate.

As the 7 day period is too short for the study of seasonal variation a period of 4 weeks each is taken giving 13 months[a] to the year. In adopting this procedure one day has to be left out every year resulting in the omission of a week for every six years. As no figures for calender months are available this procedure is adopted and here there is the advantage of having equal duration for all months.

The common method of measuring mortality consists in relating the number of deaths to the total population. This death-rate shows the proportion by which a population decreases through deaths, but it is not an adequate measure of mortality as it is calculated without regard to the sex and age composition of the population. Though refined methods are available for working out the standardised death-rates,(5) this study is confined only to crude death rate for want of proper data.

The crude monthly death rate is taken as the number of deaths that would be recorded in the year per thousand of population had the same mortality continued throughout. Using the census figures for the years 1921, 1931 and 1941, the population for the intermediate years is estimated assuming the population growth in the city to obey the arithmetic law of increase.[a] Table I gives the monthly death-rate calculated for the 15 years. The last column and row show the mean yearly and monthly averages.

Note.—Numbers in ( ) indicate references at the end.

(*a*) The same procedure is adopted for a study of seasonal variation in birth rates in the city of Madras (See (1) page, 262), 'months' in this study correspond to the calender months of the Civil Year in the following manner:

1. 1 Jan.—27 Jan.
2. 28 Jan.—25 Feb.
3. 26 Feb.—25. Mar.
4. 26 Mar.–22 Apr.
5. 23 Apr.– 20 May
6. 21 May—17 June
7. 18 June–15 July
8. 16 July—12 Aug.
9. 13 Aug.– 9 Sep.
10. 10 Sep.—7 Oct.
11. 8 Oct.—4 Nov.
12. 5 Nov.—2 Dec.
13. 3 Dec.– 30 Dec.

(a) The population growth is generally taken to have a geometric law. But the arithmetic interpolation is found to give a closer estimation in cases where population growth is effected not only by births and deaths but by immigration also, whereas geometric interpolation is observed to be more accurate in estimating population for places having the population growth determined only by births and deaths.

TABLE I

Monthly figures of crude Death-rate in the City of Madras.

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	Average
1926	47·17	45·06	42·56	38·61	38·55	39·92	31·44	39·21	44·26	40·90	34·45	37·24	34·80	39·55
1927	38·41	32·67	32·69	34·86	36·71	31·83	29·91	58·78	41·73	29·95	31·16	38·11	41·20	36·77
1928	47·16	37·94	33·42	35·07	38·53	39·82	32·11	52·31	59·59	45·67	49·73	52·12	40·09	43·35
1929	39·70	37·54	38·83	35·20	33·58	31·89	30·19	31·28	30·49	34·07	35·17	42·51	39·64	35·39
1930	39·48	35·64	35·49	33·64	34·76	34·95	32·00	32·27	30·83	29·82	30·04	43·27	46·63	35·29
1931	53·67	45·23	37·63	32·87	33·44	42·48	36·32	29·87	33·51	29·32	28·86	30·40	31·22	35·76
1932	39·56	33·21	30·21	30·19	29·03	34·88	28·94	28·88	28·99	32·50	38·23	38·79	39·93	33·33
1933	38·58	37·39	38·02	36·14	36·95	34·02	31·27	31·48	31·30	32·89	36·00	41·49	42·08	35·97
1934	38·40	38·76	34·34	30·50	30·94	34·08	29·67	35·99	35·11	34·50	30·94	35·91	34·07	34·09
1935	38·65	33·44	31·90	30·21	31·06	35·59	31·82	40·86	35·16	34·07	40·64	39·70	34·25	35·18
1936	34·13	32·28	30·72	30·44	29·73	32·03	30·39	33·46	32·58	29·38	29·97	32·50	41·98	32·28
1937	43·97	33·08	28·89	29·70	29·77	32·79	28·99	32·33	33·61	31·92	35·80	43·54	46·80	34·71
1938	47·10	40·11	35·72	30·73	33·14	29·75	34·99	34·54	29·44	34·29	37·89	35·39	33·89	35·15
1939	38·93	39·30	35·76	35·85	39·24	39·11	30·59	36·41	36·33	34·08	42·08	46·42	42·95	38·23
1940	39·46	33·60	30·18	31·38	31·35	31·75	34·23	32·15	30·96	28·95	29·80	36·30	44·91	33·46
Average	41·62	37·02	34·42	33·03	33·79	34·99	31·52	3[illegible]·65	35·59	33·49	35·38	39·58	39·63	35·90

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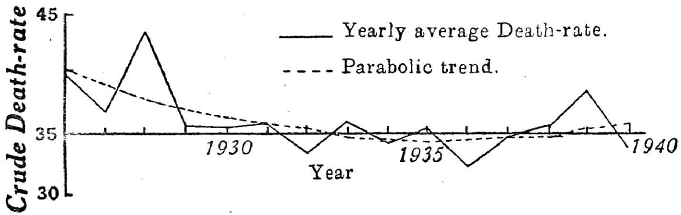
The average death rate for the whole period is 35·90 which is higher than the figure recorded for the Madras Province in 1931 (23·7).[b] A second degree curve is fitted for the yearly average death rates shown in the last column of Table 1 to indicate the general trend.[c] The yearly averages together with the parabolic trend are shown in graph I.

GRAPH I



$$Y = 35\cdot90 - 0\cdot311\ \xi_1 + 0\cdot06498\ \xi_2$$

The negative coefficient for ξ_1 shows a slight decreasing tendency in the number of deaths when adjusted for the increasing population. But the positive coefficient of ξ_2 retards this decline and brings about a parabolic movement in the trend. Year to year averages exhibit an appreciable degree of variation and no specific cause can be given for the general trend, as the deaths in every year are affected by numerous factors.

The usual method of analysis of variance is adopted to isolate the variation due to years and months and the significance of the variation is tested by using Fisher's z — transformation[(6)] Effect of non-normality does not disturb the conclusions as the values of z obtained are very high.

TABLE II

	Degrees of freedom	Sum of Squares	Mean Square	Z	5%	1%
Between means of years ..	14	1392·76	99·48	0·8686	0·2682	0·3742
Between means of months ..	12	1546·45	128·87	0·9980	0·2804	0·3908
Interaction ..	168	3396·79	17·51			
	194	6336·00	32·66			

(b) (7) p. 57.
(c) (3) pp. 155-155.

It is clear from the above table that there is significant variation in yearly and monthly death rates. Generally the high variation in years may be attributed to the sudden outbreak of some disease in particular years. But it is seen that the mean square variation in months is higher than the mean square variation for years. This indicates the existence of prominent seasonal variation in death rates.

The fluctuations in any time series can be taken to consist of the secular trend and seasonal, cyclic and residual variations. To form the seasonal indices the trend must be eliminated. The effect of cyclic and irregular changes can be eliminated by taking the average for a fairly long series of years. The monthly average figures contained in the last row of table I may be taken to be free of cyclic and residual variations as they are the averages relating to a period of 15 years. The extent of seasonal variation is obtained by eliminating the secular trend from these averages.

If the general trend is linear, it can be totally eliminated by making the necessary corrections in the monthly variations due to trend.[a] The second degree curve fitted for the yearly averages indicates the linear trend to be prominent. So the trend is eliminated from the monthly averages using the co-efficient of ξ_1 for the curve. To minimize the error all the averages are expressed as percntages of the monthly average for the entire series (35·90). The monthly trend value is — 0·067.[b] Column 2 of the Table III gives the mean monthly figures, column 3, the monthly percentage index, and column 4, the indices adjusted for trend. The total for column 4 is slightly over 1300 due to the existence of non-linearity in trend. In column 5 seasonal indices adjusted for this slight

(a) (4) p. 71.

(b) The monthly trend value is $\frac{100}{35\cdot 9} \cdot \frac{0\cdot 311}{13}$. This should be added to the second month, twice the amount is the third month and so on, as the linear trend is noted to decrease.

difference in total are shown and the corresponding diagram is marked in graph II.

GRAPH II

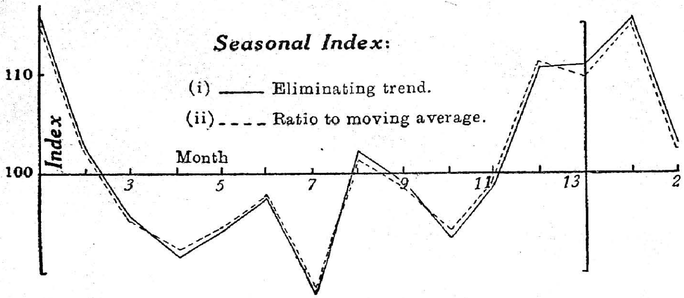


TABLE III

Month	Monthly Average	Percentage Index	Adjutsed for trend	Adjusted for total	Ratio to moving average	Corrected Seasonal Index
1	2	3	4	5	6	7
1	41·62	115·93	115·930	115·462	115·732	115·383
2	37·02	103·12	103·187	102·771	102·590	102·281
3	34·42	95·88	96·014	92·627	95·505	95·217
4	33·03	92·01	92·211	91·839	92·399	92·120
5	33·79	94·12	94·388	94·007	94·593	94·308
6	34·99	97·47	97·805	97·410	97·974	97·679
7	31·52	87·80	88·202	87·846	88·621	88·354
8	36·65	102·09	102·559	102·145	101·574	101·268
9	35·59	99·14	99·676	99·274	99·197	98·898
10	33·49	93·29	93·893	93·514	94·501	94·216
11	35·38	98·55	99·220	98·820	99·766	99·465
12	39·58	110·25	110·987	110·539	111·345	111·009
13	39·63	110·39	111·194	110·745	110·134	109·802

Another method of eliminating trend is by forming the ratio to 13—month moving averages. This method consists in finding out the arithmetic average of the deviations for a number of years from the logarithmic moving average, and is therefore valid, if the logarithmic trend is substantially linear and the seasonals do not change during the period chosen for study.[c] The algebraic proof

(c) (2) p. 57.

for forming the logarithmic seasonal indices with the 13—month moving averages is given in appendix I, and the application of the method to the crude death-rate figures is shown in appendix II. Column 6, of Table III shows the seasonal indices thus obtained. Here too the total is slightly over 1300 and the corrected indices are shown in column 7, and are also represented in graph II.

The seasonal variations in death rates show the same tendencies by both the methods, except for slight differences in intensity. Three troughs and three peaks can be noted from the graph, the minimum points being in 4th, 7th and 10th months, and the maximum points in 1st, 6th and 8th months. The lowest point is reached in the seventh month, corresponding to the early part of July and the highest is in the first month corresponding to January. Taking the calendar months into consideration the maximum points are in January, end of May and early part of June, the latter half of July and the first week of August, and the minimum points are in April, latter half of June and early part of July, and September. The peak is in January followed by a steady fall till the third week of April, then a rise up to the second week of June (the fluctuation being only below the normal level), followed by a steep fall till the second week of July and then a rise till the middle of August, after which there is a fall till the first week of October followed by a steady rise reaching the zenith by the end of January. The peaks noted in the 6th and 8th months are not very prominent. In general the deaths in the city may be taken to be below normal from the 3rd to 11th month (i.e., from the beginning of April to the end of October) and above normal from the 11th to the 3rd month (i.e., from the beginning of November till the end of February). Considering the relative changes in seasonal indices the fall from 1st to 2nd and 6th to 7th months and the rise from 7th to 8th and 11th to 12th months are prominent. This corresponds to a decline in death-rate in the early part of February and June and a rise in the later half of July and December.

Infant mortality forms the major portion of deaths not only in the City of Madras but in India as a whole. The seasonal variation in death rate is controlled by infant mortality which is influenced by climatic changes. So a study of the extent to which the death-rates respond to the local climatic changes is made. Madras may be taken to have a monsoon climate and is in close proximity to the sea. The year can be split into four main climatic periods: cold weather (third week of December to the end of February), hot weather (end of February to the end of May), south-west mon-

soon season (beginning of June to the middle of September) and north-east monsoon season (later part of September to third week of December). Rainfall is mainly through north-east monsoon in the months of October and November, though stray showers are not uncommon in September and December. Then follows winter till the end of January. The damp climate with cold weather seem to aid the spread of epidemics and disease. The steady rise in the death rate from the middle of November, culminating in January can be attributed to this climatic effect. The abatement of rains and the gradual change in weather seem to aid the fall which is perceptible till the third week of April. The intense hot weather in May and June followed by few showers in July can be taken to aid the rise and fall in death-rate reaching the lowest by the middle of July. The subsequent rise till the first week of August can be attributed to the effect of sporadic rains aiding diseases like dysentry and diarrhoea. The later fall may be taken to be aided by the moderate temperature maintained without any rainfall. The seasonal variation in general can be accounted for by the local climatic changes in the City of Madras.

In this paper a study is made of the general trend and seasonal variation in deaths in the City of Madras. There is a steady decrease, though not prominent, in the yearly death-rate. The seasonal variation is prominent with a maximum in January and a minimum in July. The deaths in the city respond to the local climatic changes. This may be attributed to infant mortality which forms the major portion of the deaths.

REFERENCES

1. *Mathew, N. T.*—'The influence of seasons on human reproduction'. Sankhya, Vol. V. pp. 261-268, (1940-'41).

2. *Sinha, A.*—'The seasonal factor in Indian trade; Industry and finance. Sankhya, Vol. VI. pp. 51-76 (1942)

3. *Fisher, R. A.*—'Statistical methods for Research workers', (1938),

4. *Herbert Arkin* and *R. R. Colton*,—'Statistical methods', (1938).

5. *Kuczynski, R. R.*—'The measurement of population growth methods and results', (1935).

6. *Snedecor George, W.*—'Caclulation and interpretation of analysis of variance and covariance.' (1934).

7. *Wattal, P. K.*—'The population problem of India—A census study,' (1939).

APPENDIX I.

Logarithmic Seasonal Index.

Taking $x_{P, m}$ to be the logarithm of the observation in the Pth month of the mth year, the corresponding logarithms of all the monthly observations recorded for n years can be represented as follows. (Year is taken to have 13 months of equal duration).

Year.	Months												
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
1	$x_{I,1}$	$x_{II,1}$	$x_{III,1}$	$x_{IV,1}$	$x_{V,1}$	$x_{VI,1}$	$x_{VII,1}$	$x_{VIII,1}$	$x_{IX,1}$	$x_{X,1}$	$x_{XI,1}$	$x_{XII,1}$	$x_{XIII,1}$
2	$x_{I,2}$	$x_{II,2}$	$x_{III,2}$	$x_{IV,2}$	$x_{V,2}$	$x_{VI,2}$	$x_{VII,2}$	$x_{VIII,2}$	$x_{IX,2}$	$x_{X,2}$	$x_{XI,2}$	$x_{XII,2}$	$x_{XIII,2}$
m	$x_{I,m}$	$x_{II,m}$	$x_{III,m}$	$x_{IV,m}$	$x_{V,m}$	$x_{VI,m}$	$x_{VII,m}$	$x_{VIII,m}$	$x_{IX,m}$	$x_{X,m}$	$x_{XI,m}$	$x_{XII,m}$	$x_{XIII,m}$
n	$x_{I,n}$	$x_{II,n}$	$x_{III,n}$	$x_{IV,n}$	$x_{V,n}$	$x_{VI,n}$	$x_{VII,n}$	$x_{VIII,n}$	$x_{IX,n}$	$x_{X,n}$	$x_{XI,n}$	$x_{XII,n}$	$x_{XIII,n}$
Total	S_{I}	S_{II}	S_{III}	S_{IV}	S_{V}	S_{VI}	S_{VII}	S_{VIII}	S_{IX}	S_{X}	S_{XI}	S_{XII}	S_{XIII}

Let S_I S_{II} ...... S_{XIII} be the sums of the n quantities in each column. When the thirteen-month moving averages are formed, the first six items in the first row, and the last six items in the last row that are underlined in the above table will be omitted. So every column will have $(n-1)$ moving averages corresponding to the figures underlined except the seventh which will have n moving averages.

$$\text{Let} \sum_{P=I}^{XIII} S_P = z, \quad \sum_{P=I}^{XIII} x_{P,1} = k_1 \quad \text{and} \quad \sum_{P=I}^{XIII} x_{P,n} = k_n$$

Also suppose $(x_{P,I} - x_{P,n}) = a_p$ such that p takes the values 1 to 13 as P varies from I to XIII.

Considering the first column, the trend value of

$$x_{I,2} = \frac{1}{13}\Big[x_{VIII,1} + x_{IX,1} + \ldots\ldots\ldots\ldots\ldots$$

$$+ x_{XIII,1} + x_{I,2} + x_{II,2} + \ldots\ldots\ldots\ldots + x_{VII,2}\Big]$$

So the deviation of the observed value from the trend

$$= x_{I,2} - \frac{1}{13}\Big[x_{VIII,1} + x_{X,1} + \ldots\ldots$$

$$+ x_{XIII,1} + x_{I,2} + \ldots\ldots + x_{VII,2}\Big]$$

Similarly the deviation of $x_{I,3}$ from its corresponding moving average

$$= x_{I,3} - \frac{1}{13}\Big[x_{VII,2} + x_{IX,2} + \ldots\ldots + x_{XIII,2}$$

$$+ x_{I,3} + \ldots\ldots\ldots + x_{VII,3}\Big]$$

In general, the denation of $x_{I, m}$ from the corresponding moving average is

$$= x_{I, m} - \frac{1}{13}\Big[x_{VIII, m-1} + x_{IX\ m-1} + \ldots + x_{XIII, m-1}$$

$$+ x_{I, m} + \ldots + x_{VII, m} \Big]$$

The deviation of the last observation $x_{I, n}$ in the column is

$$= x_{I, n} - \frac{1}{13}\Big[x_{VIII, n-1} + x_{IX, n-1} + \ldots\ldots + x_{XIII, n-1}$$

$$+ x_{I, n} + \ldots\ldots + x_{VII, n} \Big]$$

If $s_{I}^{(n-1)}$ is taken to be the sum of the $(n - 1)$ deviations of the observations from their respective moving averages in the 1st column

$$s_{I}^{(n-1)} = S_{I} - x_{I, 1} - \frac{1}{13}\Big[z - (x_{VIII, n} + x_{IX, n} + \ldots$$

$$+ x_{XIII, n} + x_{I, 1} + x_{I, 2} + \ldots\ldots + x_{VI, 1} \Big]$$

$$= S_{I} - x_{I,1} - \frac{1}{13}\Big[z - \{k_{1} - (a_{8} + a_{9} +$$

$$a_{10} + a_{11} + a_{12} + a_{13})\} \Big]$$

Taking $a_{13} = - b_1$, $a_{12} = - b_2$ ...... and $a_8 = - b_6$,

$$s_{I}^{(n-1)} = S_{I} - x_{I, 1} - \frac{1}{13}\Big[[z - (k_{I} + \sum_{p=1}^{6} b_{p}) \Big]$$

Considering the second column, the moving average corresponding to $x_{II, 2}$ is

$$= \frac{1}{13}\Big[x_{IX, 1} + \ldots\ldots + x_{XIII, 1} + x_{I, 2} + \ldots\ldots + x_{VIII, 2} \Big]$$

So the sum of the $(n-1)$ deviations in the 2nd column reduces to

$$s_{\text{II}}^{(n-1)} = S_{\text{II}} - x_{\text{II},1} - \frac{1}{13}\left[z - (x_{\text{IX},n} \ldots\ldots + x_{\text{XIII},n} + x_{\text{I},1} + \ldots\ldots + x_{\text{VIII},1}) \right]$$

$$= S_{\text{II}} - x_{\text{II},1} - \frac{1}{13}\left[z - \{k_1 - (a_9 + a_{10} + a_{11} + a_{12} + a_{13})\} \right]$$

Hence $s_{\text{II}}^{(n-1)} = S_{\text{II}} - x_{\text{II},1} - \frac{1}{13}\left[z - (k_1 + \sum_{p=1}^{5} b_p) \right]$

Proceeding similarly

$$s_{\text{III}}^{(n-1)} = S_{\text{III}} - x_{\text{III},1} - \frac{1}{13}\left[z - (k_1 + \sum_{p=1}^{4} b_p) \right]$$

$$s_{\text{IV}}^{(n-1)} = S_{\text{IV}} - x_{\text{IV},1} - \frac{1}{13}\left[z - (k_1 + \sum_{p=1}^{3} b_p) \right]$$

$$s_{\text{V}}^{(n-1)} = S_{\text{V}} - x_{\text{V},1} - \frac{1}{13}\left[z - (k_1 + \sum_{p=1}^{2} b_p) \right]$$

$$s_{\text{VI}}^{(n-1)} = S_{\text{VI}} - x_{\text{VI},1} - \frac{1}{13}\left[z - (k_1 + b_1) \right]$$

Taking the seventh column the deviation of $x_{\text{VII},1}$ from the corresponding moving average is

$$= x_{\text{VII},1} - \frac{1}{13}\left[x_{\text{I},1} + x_{\text{II},1} + \ldots + x_{\text{XIII},1} \right]$$

The sum of all such n deviation is

$$s_{\text{VII}}^{(n)} = S_{\text{VII}} - \frac{1}{13}(z)$$

Considering the eight column, the deviation of $x_{\text{VIII},1}$ from the trend is

$$= x_{\text{VIII},1} - \frac{1}{13}\left[x_{\text{II},1} + x_{\text{III},1} + \cdots\cdots + x_{\text{XIII},1} + x_{\text{I},2} \right]$$

The sum of all such $(n-1)$ deviations reduces to

$$s_{\text{VIII}}^{(n-1)} = S_{\text{VIII}} - x_{\text{VIII},n} - \frac{1}{13}\Big[z - (x_{\text{II},n} + x_{\text{III},n} + \cdots\cdots + x_{\text{XIII},n} + x_{\text{I},1}\Big]$$

$$= S_{\text{VIII}} - x_{\text{VIII},n} - \frac{1}{13}\left[z - (k_n + a_1) \right]$$

Similarly taking the deviations for the remaining columns

$$s_{\text{IX}}^{(n-1)} = S_{\text{IX}} - x_{\text{IX},n} - \frac{1}{13}\left[z - (k_n + \sum_{p=1}^{2} a_p) \right]$$

$$s_{\text{X}}^{(n-1)} = S_{\text{X}} - x_{\text{X},n} - \frac{1}{13}\left[z - (k_n + \sum_{p=1}^{3} a_p) \right]$$

$$s_{\text{XI}}^{(n-1)} = S_{\text{XI}} - x_{\text{XI},n} - \frac{1}{13}\left[z - (k_n + \sum_{p=1}^{4} a_p) \right]$$

$$s_{\text{XII}}^{(n-1)} = S_{\text{XII}} - x_{\text{XII},n} - \frac{1}{13}\left[z - (k_n + \sum_{p=1}^{5} a_p) \right]$$

$$s_{\text{XIII}}^{(n-1)} = S_{\text{XIII}} - x_{\text{XIII},n} - \frac{1}{13}\left[z - (k_n + \sum_{p=1}^{6} a_p) \right]$$

The average of the sums of deviations thus formed give the logarithmic seasonal index for every month.

To further simplify the calculations the logarithms with their characteristics omitted may be utilised and the balance of these omitted characteristics can be added to the sums before taking the arithmetic average.

APPENDIX II.

The figures of the monthly crude death rates are taken here to illustrate fully the procedure of obtaining seasonal index by taking the average of the ratio of actual to the 13 month moving average.

Following the same notation as in Appendix I, from the figures in the first and last rows in table I (omitting the characteristic for each logarithm).

$x_{I, 1} = 0 \cdot 67367$ $\qquad$ $x_{VIII, n} = 0 \cdot 50691$

$x_{II, 1} = 0 \cdot 65379$ $\qquad$ $x_{IX, n} = 0 \cdot 49080$

$x_{III, 1} = 0 \cdot 62900$ $\qquad$ $x_{X, n} = 0 \cdot 46165$

$x_{IV, 1} = 0 \cdot 58670$ $\qquad$ $x_{X,I\, n} = 0 \cdot 47422$

$x_{V, 1} = 0 \cdot 58602$ $\qquad$ $x_{XII, n} = 0 \cdot 55991$

$x_{VI, 1} = 0 \cdot 60119$ $\qquad$ $x_{XIII, n} = 0 \cdot 65234$

and $k_1 = 7 \cdot 72876$, $\qquad$ $k_n = 6 \cdot 77709$.

As the characteristic for each logarithm of all x's is only unity

$a_1 = 0 \cdot 07751$ $\qquad$ $b_1 = 0 \cdot 11076$

$a_2 = 0 \cdot 12745$ $\qquad$ $b_2 = \bar{1} \cdot 98890$

$a_3 = 0 \cdot 14928$ $\qquad$ $b_3 = \bar{1} \cdot 93703$

$a_4 = 0 \cdot 09005$ $\qquad$ $b_4 = \bar{1} \cdot 84993$

$a_5 = 0 \cdot 08978$ $\qquad$ $b_5 = \bar{1} \cdot 84479$

$a_6 = 0 \cdot 09945$ $\qquad$ $b_6 = \bar{1} \cdot 91351$

The sums of the logarithms in each column (omitting characteristics) are,

$S_I = 9 \cdot 24744$ $\qquad$ $S_{VIII} = 8 \cdot 32723$

$S_{II} = 8 \cdot 48806$ $\qquad$ $S_{IX} = 8 \cdot 14863$

$S_{III} = 8 \cdot 01618$ $\qquad$ $S_X = 7 \cdot 82235$

$S_{IV} = 7 \cdot 76137$ $S_{XI} = 8 \cdot 15715$

$S_{V} = 7 \cdot 89850$ $S_{XII} = 8 \cdot 90354$

$S_{VI} = 8 \cdot 12637$ $S_{XIII} = 8 \cdot 92182$

$S_{VII} = 7 \cdot 46566$

so that $z = 107 \cdot 28430$. Also $(z - k_1) = 99 \cdot 55554$ and $(z - k_n) = 100 \cdot 50721$. To either of the above factors $195 - 13 = 182$ must be added and 14 to every $(S_P - x_P)$ occuring in the sums s_P (P varying from I to XIII) to compensate the omission of characteristics.

$$\text{Hence } s_I^{(14)} = 8 \cdot 57377 + 14 - \frac{1}{13} [182 + 99 \cdot 55554 - \bar{1} \cdot 64492]$$
$$= 0 \cdot 88834$$

So the mean logarithmic index for the first month $= 0 \cdot 0634529$.

Hence the average seasonal ratio for the first month is **1·15732.**

Taking the average of the actual data expressed as percentage of the corresponding moving average to be the seasonal index, the value for the first month reduces to 115·732.

Column 6 of table III shows the seasonal indices of all the 13 months obtained similarly.

MEMORIAL TO THE LATE MR. S. S. SURYANARAYANA SASTRI, M.A., B.Sc., READER IN INDIAN PHILOSOPHY, 1927-42, AND EDITOR, JOURNAL OF THE UNIVERSITY OF MADRAS, 1941-42

On the 30th of September, 1943, there was held a public meeting in the University when the portrait of the late Mr. S. S. Suryanarayana Sastri, (Reader in Indian Philosophy in the University 1927-42), presented by the Teachers of the University, was unveiled by Sir S. Radhakrishnan, Vice-Chancellor of the Hindu University, Benares. Dr. A. Lakshmanaswami Mudaliyar, Vice-Chancellor, presided.

Dr. Lakshmanaswami Mudaliyar, in the course of his introductory remarks, paid a glowing tribute to the memory of Mr. Suryanarayana Sastri and referred in eulogistic terms to the great services rendered by him to the cause of Indian Philosophical Studies and their organisation in the University. He remarked that in the premature and unexpected death of Mr. Sastri at a comparatively early age, the University had sustained a great loss, and Indian Philosophy a very keen student.

Dr. E. Asirvatham, in requesting Sir S. Radhakrishnan to unveil the portrait of Mr. S. S. Suryanarayana Sastri, made the following statement on behalf of the teachers of the University:

"In the absence of Prof. P. J. Thomas, I have to make this short statement on behalf of the teachers of the University. Apart from the greatness of his achievements as a student, teacher, and thinker, Mr. Suryanarayana Sastri had a genius for friendship which made him the life and soul of the little academic world which carries on its work in these buildings. And when the news of his untimely death came to us last December, it was a shock of personal sorrow to all his colleagues, and so without the formality of any committee or resolution this little memorial has sprung up as the spontaneous expression of our feelings. When we started, we framed no estimate and made no appeal. We find that we have collected a sum of Rs. 205, out of which a sum of Rs. 130 has been spent on the portrait, printing, and other expenses, leaving us with a balance of Rs. 75, which we propose to hand over as the contribution of

The Late Mr. S. S. Suryanarayana Sastri, M.A., (Oxon), *Bar-at-Law.*
Reader in Indian Philosophy
University of Madras 1927-1942.

the University teachers to the larger memorial which is in contemplation...

"Mr. Suryanarayana Sastri was born at Madura in the month of October in the year 1893 and had his early education in that city. After taking a high First Class Degree in B.A. in Pachaiyappa's College, he joined Presidency College for his post-graduate M.A. course and was a student under Professor Radhakrishnan. After taking a brilliant First Class in his M.A. Degree Examination, he taught Philosophy for some time in Pachaiyappa's College and then proceeded on a Government of India Scholarship to Merton College, Oxford, where he worked with Professor Joachim and produced a thesis on Bradley and Sankara, for which he was awarded the B.Sc., degree in Philosophy. He also became a Barrister and, returning to Madura, he practised at the Bar for some time, and later became Principal of the Madura College. He was Secretary of the Tamil University Committee, and visited various centres in the Tamil districts in that capacity, and helped to produce the report of the Committee.

"He became the first Reader in Indian Philosophy of this University, when the Department was started in 1927, and carried on research and guided his students in higher study and investigation during the rest of the years of his life.

"Prof. Suryanarayana Sastri's contribution to Indian Philosophy is both profound and extensive. After his scholarly work on the *Śivādvaita of Śrīkaṇṭha*, he devoted his time almost entirely to a study and exposition of Advaita Vedanta. The results of his labours have appeared in various forms. Preparatory to a reconstruction of this great philosophy in the light of modern thought and social conditions, he brought out editions and translations, some of them in collaboration with other scholars, of several Advaita classics like the *Bhāmatī* (Catussūtri), *Siddhāntaleśa-sangraha*, *Tattva-śuddhi*, *Vivaraṇa-prameya–sangraha*, and, *Vedānta paribhāṣā*. Besides the brief but lucid account of the life and teachings of Śankara which has been published, he was engaged for some years past in embodying in a work, which he called the *Fundamentals of Advaita*, the fruits of two decades of research and independent inquiry into the nature of Reality. He finished writing the first chapter, and was at the second when unfortunately and prematurely he was called away. Had he lived to complete this work, it would have become a classic and his *Magnum opus* as

well. His participation in the conferences of learned bodies and the work he did for the Indian Philosophical Congress as its Secretary for a number of years, are too well known to need recital. His contributions to the Journals of Advanced Research in this country were rich and varied. Whatsoever the topic on which he wrote, he struck the same note—the note of peace and harmony, continuity and unity, detachment and freedom—concepts which are so essential for an Advaitin.

"It is remarkable that one who did not have, to start with, a leaning towards Advaita, should have ended by enriching the system in such an eminent way as Prof. Suryanarayana Sastri has done. His conversion to Absolutism, as he confessed in one of the Miller Lectures, was neither quick nor easy. Patiently he worked, and slowly he became convinced that Advaita was the goal of his philosophic quest. But even here he was not content to follow the beaten track, and take things on tradition or authority. He tested every doctrine on the touch-stone of his own experience, before he would accept it. *Ipse dixit* was never an argument with him. He differed in some places even from the great Sankara. The true adventurer in spirit that he was, Professor Sastri was prepared to go whithersoever his search led him. By an unerring instinct as it were, he could reach the soul of a problem straight, and deal with it through the dialectic in which he was an adept. In his very first address in 1928 under the auspices of the University, he said "To gather the old material and enrich it with the new is a stupendous task awaiting the earnest and patient worker." It is no exaggeration to say that with an earnestness that knew no bounds and a patience that knew no defeat, he accomplished this task with credit and honour both to himself and to the University."

Sir S. Radhakrishnan in unveiling the portrait referred to Mr. Suryanarayana Sastri's contributions to Indian Philosophy in general and to Advaita in particular. He said it was a great misfortune that he should have been cut off at a time when his powers were at their highest. The work which he had done would do credit to any student of Philosophy.

"We are in an unfortunate position in our country", he said, "the position being that those who work in the field of philosophy, art or religion, do not arouse the amount of enthusiasm which those who happen to serve the community in politics do. I do not deny for a moment that there are many wrongs which can be diminished, many sufferings which can be remedied, by political action.

But if foreign rule is able to humiliate, corrupt and divide us, let us remember that it continues to operate because of our own spiritual disintegration. Things happen in the soul first before they occur in the body. Unless it is possible for us to acquire some pride in the past, some hope for the future, unless we are rescued from this apathy and danger, it will not be possible for us to do anything great in this world.

"All I wish to say is that because the sun is setting, we need not think it will not rise again. Therefore, I believe, workers in philosophy, literature, religion, art and science, who may not directly serve political ends have also a title to our recognition. When such recognition comes to prevail in this country I have no doubt that the work which Mr. Suryanarayana Sastri has done will receive that due recognition.

"I do hope in this University there will come to be established a school of philosophy, worthy not only of the labours of of Mr. Suryanarayana Sastri, but also worthy of the great past which South India had in the realm of philosophy and religion."

Though the late Professor had not met with any worldly success, the speaker pointed out, he had enabled a number of people to learn a little of the meaning and purpose of life.

The meeting terminated with a vote of thanks to the two distinguished Vice-Chancellors proposed by Dr. T. M. P. Mahadevan.

REVIEWS

KERALA CULTURE. By K. Mammen, M.A., Trivandrum (1942).

Any study of Indian culture should be interesting. Many elements comprise the complex whole of this culture. One such element is seen in the contribution of the Kerala culture to Indian culture. Though it is a rather difficult task to cull out the specific characteristics of this culture which became merged thousands of years ago in what we call to-day Indian culture, still an earnest study and patient research are bound to yield some valuable results. The author of this book realises such difficulties in producing his thesis and still his attempt to collect and compile the stray information on the subject is highly creditable.

After a brief description of the historical geography of Kerala, he examines the life of the Pre-Dravidians who were the ancestors of the Dravidians. Mr. Mammen accepts the diffusion of the heliolithic culture from a Mediterranean base across the Indian and Pacific Oceans, and its influence on Kerala especially in the use of swastika, tattooing, circumcision, etc. Then he proceeds to give the cultural and commercial contacts with the people of ancient civilisations. Finally, he devotes three chapters to the Dravidians and their cultural progress.

Though it may be contended that the author has not made any original contribution in this book, yet his work as a pioneer deserves recognition.

V. R. R. DIKSHITAR.

THE ECONOMICS OF INDIAN AGRICULTURE by Dr. B. V. Narayanaswamy and P. S. Narasimhan, Part I, Rochouse and Sons, Ltd., Madras, pp. 298.

The book under review is Part I of a text-book on agricultural economics. Part II is in the press and will be published in a few weeks. In Part I the topics discussed are problems of rural debt and credit. By selecting these for earlier treatment and relegating to Part II topics on production and organisation of farm work, the authors make a departure from the usual practice. This is done for the excellent reason that unless rural indebtedness is liquidated and an adequate supply of credit assured to Indian agriculturists,

there is no chance of improvement in farm work. The discussion on indebtedness is fairly thorough. The causes of debt, the magnitude of debt, and all the legislative measures taken in the various provinces of India for the clearance of debt find full treatment. But one misses the economic and moral arguments for the compulsory scaling down of debts. Any violation of the sanctity of contracts should have ample justification, and an examination of that question would have greatly enhanced the value of the chapter. The chapters which follow deal with the rural credit agencies existing in India. Money-lenders very rightly receive special attention, and a whole chapter is devoted to a description of their system and the regulative measures needed for stamping out their malpractices. It is however the co-operative society which the authors consider to be the bed-rock of a sound rural credit system. In 6 long chapters the co-operative movement in India is examined in all those aspects which hinge on the life and work of the cultivator. There are sketches of the constitution and working of the several organs of the movement. Description is followed by critical appraisal, and on the controversial questions of the day such as multi-purpose societies, controlled credit, unlimited liability, de-officialization, etc., the authors have definite views to offer. With few exceptions, their findings accord with the findings of the Madras Committee on Co-operation, 1940. The failure of the co-operative movement to serve its manifest objective is attributed to the lack of the co-operative spirit and co-operative education both in the rank and file and in the rapidly dwindling leadership. The inevitable remedy is education and yet more education. The final chapter assesses the value of the work of the Reserve Bank of India in the field of agricultural credit.

The descriptive part of the work is characterized by accuracy; criticism is reasoned, and judgment perfectly balanced. The authors have to be congratulated on the production of a very readable and extremely useful text-book.

C. W. B. ZACHARIAS.

IMPORTANT INSCRIPTIONS FROM THE BARODA STATE. By A. S. Gadre (Memoir II, Sri Pratapa Simha Rajyabhiseka Granthamala), Baroda, 1943.

Mr. Gadre has edited a dozen important epigraphs from different parts of the modern Baroda state in this well-produced volume. Facsimilies have been provided for most of them.

Chronologically the inscriptions range from about A.D. 200 to 1735, and the records cover several interesting passages in the history of this part of the country in this long stretch of time. The Director-General of Archaeology, Rao Bahadur K. N. Dikshit, who contributes a foreword, rightly draws pointed attention to the reconstruction of the second record in the series which assigns it to the Kalaccuris and lays at rest the earlier speculations regarding the Gurjara character of the second part of the record, known long before the present first part was discovered by Mr. Gadre and prefixed to it. The inscriptions are some of them good Sanskrit literature and very well preserved without the gaps that usually hamper the enjoyment of inscriptions as literature; all the inscriptions contain primary data, social, economic, religious and political, of great value. We congratulate the archaeological department of the Baroda State on this scholarly and useful publication and hope that many such publications will follow in due course.

K. A. NILAKANTA SASTRI,

ZOROASTRIAN PROBLEMS IN THE NINTH CENTURY BOOKS—By H. W. Bailey.

This valuable volume of studies from the pen of a well-known Iranist of England is very welcome. Prof. Bailey has had long years of valuable work in Iranian studies before he became the Professor of Sanskrit at the University of Cambridge. The one thing that strikes a student in this book is the wealth of knowledge gathered from all sources. It should certainly make our students in India conscious of their own limitations. This is unfortunately particularly to be noted among students of Iranian subjects in Western India. Their studies are deep enough but are strictly limited to Iranian (mainly Zoroastrian) Literature. It is high time that this *kūpamaṇḍūka* mentality of our students was removed. This is the first and most important lesson one learns from this book.

The first two chapters deal with the significance of the word *farrah* (Avesta *hvarnah*). With a mass of quotations from Avesta, from Middle Iranian (both Zoroastrian and non-Zoroastrian), from Chinese and other sources the author strives to prove that the word originally meant "the good things of the earth" and that it was later "mystic" beliefs that gave to the word the sense of "spiritual light" or "inner radiance." In short, the author believes that words of ancient Iranian Scriptures have to be taken in "the

material" sense primarily. The "spiritual" and the "mystic" sense is as it were added on in later days. The reviewer holds diametrically the opposite view, and has not been convinced even by the mass of erudition Prof. Bailey has brought to bear upon the subject. We may differ in our points of view but there can be no question about the learning of the author.

The second question tackled is *Martom* or man and his constitution as described in the later Pahlavi works. The "principles" that go to the building up of man have been enumerated in one or two passages of the Avesta (e.g. Yas. 28·4 and 55·1) and they are individually mentioned in several other passages. Prof. Bailey gives the systematic ideas that prevailed in the 9th century and he traces the history of each of these. This is done in a most interesting manner. He brings out the influence of Greek thought in this connection. But comparisons with Indian thought can also be made. Sasanian and pre-Sasanian Iran was the meeting ground of all sorts of ideas and theories. The full history of this has yet to be unravelled.

Similarly in the fourth chapter on *Āsmān* (usually translated "sky", but the philosophical content of the word seems more akin to the Skt. *ākāśa*) the author deals with the cosmology of that period. Here too we get a wealth of erudition culled from all sources.

The fifth chapter *Patvand* deals with the "religious tradition" of Iran. It deals with the preservation of the ancient texts and the inevitable unconscious changes and accretions that must in course of time creep in. This is an important contribution to what we may call "textual criticism" of the Avesta. It opens out new lines of thought and puts into some sort of order the very confusing mass of variant readings found in our Avesta manuscripts.

The last chapter is a necessary supplement to the fifth. That one deals mainly with *oral* tradition, this one deals with the problems of Avestan *script*. Ever since the time when Andreas made his epoch-making announcement on the origin of the Avestan script, this question has kept many scholars busy. New discoveries since then have added to our knowledge and what Prof. Bailey has to say on this point deserves the closest attention of our Indian (Parsi) Iranists.

There are eight Appendices giving some important texts illustrating points mentioned in the various chapters of the book.

Some of them are valuable and interesting and throw new light on some of the more difficult Pahlavi texts.

The only fault the reviewer has to find with the book is the absence of a general "subject" Index. There is a word-index, but only one index of this kind is not enough for a book of this nature. Still one may say:

एको हि दोषो गुणसन्निपाते निमज्जतीन्दोः किरणेष्विवांकः ।

Prof. Bailey deserves the best thanks of all Iranists and of the Zoroastrians for this work of outstanding merit.

IRACH J. S. TARAPOREWALA.

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